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REPORTS

FROM

COMMISSIONERS, INSPECTORS,

AND OTHERS:

THIRTY-FIVE VOLUMES.

—(4.)—

ARMY (EXAMINATIONS);
CHELSEA AND KILMAINHAM HOSPITALS;
PATRIOTIC FUND;
SANDHURST COLLEGE; WELLINGTON COLLEGE;
WOOLWICH ACADEMY; ALKALI, &c., WORKS.

Session
12 *March* 1894 —— 25 *August* 1894.

VOL. XIX.

1894.

REPORTS

FROM

COMMISSIONERS, INSPECTORS,

AND OTHERS:

1894.

THIRTY-FIVE VOLUMES:—CONTENTS OF THE

FOURTH VOLUME.

N.B.—*THE* Figures *at the* beginning of the line, *correspond with the* N° *at the foot of each* Report; *and the* Figures *at the* end of the line, *refer to the* MS. Paging *of the Volumes arranged for The House of Commons.*

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[C. 7373.] Report of the Committee appointed to inquire into the entrance examinations (in non-military subjects) of Candidates for Commissions in the Army, with Minutes of Evidence and Appendices. p 1

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REPORT

OF THE

COMMITTEE APPOINTED TO ENQUIRE INTO THE ENTRANCE EXAMINATIONS (IN NON-MILITARY SUBJECTS) OF CANDIDATES FOR COMMISSIONS IN THE ARMY,

TOGETHER WITH

MINUTES OF EVIDENCE AND APPENDICES.

Presented to both Houses of Parliament by Command of Her Majesty.

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1894.

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NAMES OF MEMBERS OF THE COMMITTEE.

Chairman.

Lord SANDHURST, Parliamentary Under Secretary of State for War.

Members.

Lord FRANCIS HERVEY, Civil Service Commissioner.

Lieutenant-General Sir REGINALD GIPPS, K.C.B., Military Secretary.

General Sir W. O. LENNOX, V.C., K.C.B., &c., Director-General of Military Education.

Sir H. E. ROSCOE, M.P.

Dr. W. A. HUNTER, M.P.

Mr. J. G. SWIFT MACNEILL, M.P.

Mr. H. J. ROBY, M.P.

Mr. C. A. WHITMORE, M.P.*

Mr. R. H. BRADE, *Secretary.*

REFERENCE.

"To enquire into the entrance examinations (in non-military subjects) of candidates for commissions in the Army, and to advise whether any modification of the existing arrangements is desirable" $\frac{7680}{1651}$.

The report of a Committee appointed to consider the conditions on which Queen's Cadets enter the Army was also subsequently referred to this Committee, so far as that report dealt with the standard of qualification of such cadets, $\frac{100}{\text{Candidates}}$ (*see* Appendix XXII.). $\frac{}{1415}$

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* Mr. C. A. Whitmore, M.P., joined the Committee in August, 1893, taking the place of Mr. R. G. C. Mowbray, M.P., who joined the Opium Commission.

REPORT.

Secretary of State,

1. The Committee appointed by you on 21st July, 1893, have concluded their deliberations, and now beg to present their report. The reference was as follows:— Reference.

> To enquire into the entrance examinations (in non-military subjects) of candidates for commissions in the Army, and to advise whether any modification of the existing arrangements is desirable.

In addition, the Report of a Committee appointed to enquire into the conditions on which Queen's Cadets enter the Army was referred to them, so far as that report dealt with the standard of qualification of such cadets. Appendix XXII.

2. The Committee have examined various witnesses, including His Royal Highness the Commander-in-Chief, General Sir R. Buller, Adjutant-General, Lieut.-General Grant, R.E., Inspector-General of Fortifications, and other combatant Officers; Medical Officers, including the Director-General of the Medical Department of the Navy, and Surgeon-Major-General Jameson, Professional Assistant to the Director-General of the Army Medical Department, the First Civil Service Commissioner, Head Masters, Masters of Army classes, and of modern sides at various public schools, and Private Tutors. They have also received documents, stating the views of many gentlemen interested in the subject, memoranda from the Director of Military Intelligence, relating to the method of recruiting the commissioned ranks of the Austrian, French, and German Armies, and a pamphlet addressed to you as Secretary of State by Mr. Wren. Proceedings of the Committee. Appendix XIX.

3. At present, candidates for commissions are required to undergo examinations in non-military subjects in the following cases:— Present examinations.

A.—For the Royal Artillery and Royal Engineers—

(i.) An open competitive examination in literary subjects is held twice a year, the successful candidates at which are required to go through a two years' course of instruction, mainly in military subjects, as cadets at the Royal Military Academy, Woolwich. After the completion of this course the cadets are commissioned. The admissions to Woolwich at present number 50 every half-year. Candidates for Woolwich. Appendix IV.

(ii.) Two commissions in the Artillery are at present granted every half-year to Militia Subalterns on passing a qualifying examination in literary subjects and competing among themselves in military subjects. Appendix IV.

(iii.) One commission in the Artillery and one in the Engineers are granted annually to the most successful students in the Royal Military College of Canada. Appendix IV.

B.—For the Cavalry and Infantry—

(i.) An open competitive examination in literary subjects is held twice a year, the successful candidates at which are required to go through a $1\frac{1}{2}$ years' course of instruction entirely in military subjects as cadets at the Royal Military College, Sandhurst. After the completion of the course the cadets are commissioned. The admissions to Sandhurst of this class at present number about 102 every half-year. Candidates for Sandhurst. Appendix IV.

Queen's Cadets.

Appendix XXII.

(ii.) A limited number of the sons of officers, who have earned the privilege by service of a specified nature, are appointed Queen's or Honorary Queen's Cadets, or Queen's India or Honorary Queen's India Cadets, and are admitted to Sandhurst on attaining in the examinations referred to in paragraph B (i.) the same standard of qualification as is required of the Militia candidates referred to in B (iii.) The number of admissions of this class is about 18 every half-year.

Militia candidates.

(iii.) About 57 commissions are given every half-year to Militia Officers after competitive examination among themselves in military subjects. These have had to attain a certain standard of literary qualification, either at the Sandhurst examination, referred to in paragraph B (i.), or at a special examination of a like character.

Appendix IV.

University candidates.

(iv.) Eight commissions are offered every half-year to candidates who have passed specified examinations at certain Universities. These candidates compete only amongst themselves, and not at all if their number is no more than that of the commissions offered. The subjects of competition are the same as those for entrance to Sandhurst, and the examination takes place at the same time. University candidates to whom commissions are given in this way are subsequently required to qualify in military subjects.

Appendix IV.

Pages of Honour.

(v.) Pages of Honour may obtain commissions through Sandhurst, being admitted in the same manner as Queen's Cadets, &c., or through the Militia on qualifying in literary and military subjects.

(vi.) One commission in the Cavalry and one in the Infantry are granted annually to the most successful students in the Royal Military College of Canada.

(vii.) A small number of commissions are granted annually to Officers of Colonial Military Forces, and gentlemen nominated by Colonial Universities, and about ten to non-commissioned officers. As these cases are few, and the qualifications required are mainly of a military character, the Committee omit any further mention of them.

Appendix IV.

4. It will be seen that a majority of the commissions (the total number of which is about 500 a year) are obtained by successful candidates at open competitive examinations for entrance to Woolwich and Sandhurst. Militia candidates and Queen's Cadets, &c., undergo the same examination, but they have to qualify only, and University candidates only enter the examination in certain circumstances, and with a view to competition amongst themselves.

Preliminary examination.

5. At the time when this Committee was appointed, all candidates, before entering for the examinations described in paragraphs 3 A (i.) and (ii.), and B (i.), (ii.), (iii.), and (v.), were required to pass a preliminary test in certain elementary subjects of education. This test was of a character suited to boys of about 15 years old, and the requirement was made with a view of eliminating at an early age candidates who had no chance of success in the subsequent competition. It has been found, however, that this object is not attained, and the preliminary examination has been abolished since September, 1893. A number of witnesses have expressed their regret at this step, but the Committee are unable to agree with them, and think that the purposes which a test of this nature may be expected to secure can be better attained by the teachers themselves, and accordingly recommend that this examination be not restored. The subjects of the preliminary are now included in the competitive examination.

Moriarty, 867. Courthope, 1988.

Biddulph, 198-9; Moriarty, 814, 861-8, 870-5; Gurney, 1,226; Welldon, 1746-7.

Medical examination.

6. In addition to the examinations in literary subjects, each successful candidate thereat is required to pass a medical test to the satisfaction of a Board of Army Medical Officers, but there is no competition in physical exercises, and no marks are given for physical development, the medical examination being a qualifying test only, and in no way affecting the relative position of the candidates in the process of selection.

7. The Committee received much evidence with reference to marking for physical exercises and development. It will be observed that while some witnesses* were strongly in favour of such marking, the majority,† including the Adjutant-General,‡ were averse to it. His Royal Highness, and some other witnesses,§ thought it would be desirable, but saw great difficulties in the way of adopting it.

Competition in physical exercises and marking for physical development.

8. The Committee consider that there is not any real demand for such competition, and that it is impracticable, owing to the difficulty of finding suitable tests and of so marking candidates that there would be no grounds for suspicion of unfairness. Such a competition is open to the objection that it might give advantages to boys whose circumstances and residence gave them special facilities for riding, &c. It might lead to athletic cram or training, possibly laying in the constitution of boys of that age seeds of disease and weakness which, though unapparent at the time of the medical test, might manifest themselves in circumstances of severe strain in bad climates, and thus defeat the very object for which the examination was instituted. The Committee observe that there is no such competition in the German and Austrian Armies, while in France there is competition in riding, fencing, and gymnastics, but the mark is very low, about 5 per cent. of the whole. They consider that the school life in France differs so widely from that in England that comparison is impossible. The Committee are strengthened in their view by observing that no case is made out for dissatisfaction with the existing type of Officer, and no dissatisfaction was expressed by those who advocated physical competition.‖ Without exception, all military witnesses spoke in high terms of the younger Officers, notably those witnesses who had had opportunities of observing them on foreign service or at manœuvres.¶ Indeed, General Clive, the Commandant at Sandhurst, thought "Officers bigger men now than when he entered the Army." Brigade Surgeon Lieut.-Colonel Clarke, the Medical Officer at Sandhurst, with 10 years' experience there, thought "the general physique of the cadets had much improved." One witness stated that Army classes are generally strong at games, and another that, from statistics prepared on one occasion, it was found that intelligence and superiority at games went together. The Committee, therefore, are content to rely on the gradual development resulting from games and the generally healthy active life encouraged in this country, coupled with a medical test, clearly defined and strictly adhered to.

Appendix XXXIV.

Clive, 1610; Clarke, 1658.

Pendlebury, 551–2.

Shenstone, 1476.

9. Returns show, taking the years and examinations from 1889–93, that 22 per cent. of the cadets, at the time of their admission to Sandhurst, whether by competition or otherwise, were below the regulation standard of height or chest measurement; but reference to Appendix XXVI. shows that on passing out this percentage is very much reduced. The practice allows boys below the standard to enter Sandhurst "at their own risk," if it be considered by the Medical Board probable that they will attain that standard before passing out.

Revision of regulations concerning the medical examination recommended.

Appendix XXV.

The Committee recommend revision of the regulations; for the authorities are naturally reluctant to reject a candidate after passing a successful examination into Sandhurst, and especially after the completion of the course there. To prevent as far as possible disappointment, whatever regulations for a medical test may be made, the very fullest publicity should be given, and the attention of parents and guardians directed to them by special circular.

10. The Committee remark that as the minimum age of entry into Woolwich is 16, and into Sandhurst 17, different standards according to age

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* Scoones, 1064-96; Grant, 1358; Gasteen, 1407; Shenstone, 1476–7; Percival, 1503-17; Jameson, 1792.

† Durnford, 421; James, 639-54; Wolffram, 720; Moriarty, 829-50; Gurney, 1199; Burnett, 1383; Buller, 1590; Clive, 1640-4; Clarke, 1672-9; Chesney, 1871.

‡ Buller, 1590.

§ His Royal Highness, 1626; Pendlebury, 530; Baker, 923; Stirling, 1262; Dick, 1704-5; Phillpotts, 1768-9.

‖ Grant, 1359, 1372; Percival, 1511-12.

¶ Burnett, 1379-82; Chesney, 1872-6.

may be advisable, and that in calling on medical experts for the the new regulations, there should be required a due proportion between height, weight, and chest measurement.

11. The Committee further suggest that the medical examinations should be carried out by Boards of Medical Officers not determined by office or seniority, but specially selected for the purpose by the Director-General of the Army Medical Department.

Systems by which commissioned ranks of Continental armies are recruited.

12. The Committee observe that in the great Continental armies, excepting the French, the element of competition does not appear in the means by which the commissioned ranks are filled, but they think that any comparison between the systems obtaining abroad and in Great Britain is of little value, looking to the very different conditions and circumstances of the countries and their armies. They note, however, that in France the selection of Officers is made by examinations in the subjects of general education given in the schools, and in history and geography it is expressly provided that the examination should follow the ordinary teaching of the schools.

Appendix XXXIV., and footnote to page 243.

Considerations governing the entrance examinations for the British Army.

13. The character of our examinations is determined by two considerations, viz., the source which gives the best supply of the best candidates, and the average age at which it is found necessary to commence a youth's special military education at Woolwich or Sandhurst, preparatory to joining his regiment for service.

Limits of age of candidates.

14. With regard to the latter consideration of age, the course of instruction at Woolwich lasts two years, and that at Sandhurst 18 months. It is considered by the authorities advisable that, on being commissioned, an Officer should be between the ages of 20 and 21, and the limits of age for Woolwich have been fixed at from 16 to 18, and those for Sandhurst at from 17 to 19.

Best sources of supply of candidates.

15. With regard to the former consideration the Committee have referred to the First Report of the Royal Commission, which, under Lord Dufferin's presidency, considered the state of military education in 1869-70. Those Commissioners designed their scheme of examination "with a special reference to the curriculum adopted at the most advanced of our public schools, and with the express intention of enabling the competitors to come straight from one of those establishments to the examination hall, without having occasion to resort to any intermediate place of study." The Committee gather from the evidence before them that both parts of this design have been constantly approved, and kept in view by the authorities ever since, though experience has gradually enabled them to secure the object more completely. It is clear from Appendices V. and VI. that the candidates actually come from a great variety of schools and training, and the Committee do not desire to put any restriction on the sources of supply. But they agree with the authorities mentioned, in thinking that the public schools contain on the whole the best material for the supply of Officers, and that the entrance examinations for the Army should be so far conformed to the curriculum actually in existence in such schools as to make any intermediate tuition superfluous, at least for ordinary scholars. But in saying this the Committee desire to be understood to use the term "public schools," as including not merely a few well-known large boarding schools, but all large schools of a public character giving secondary instruction.

First Report, p. 19; *See* also pp. 14, 15.

16. These two considerations it will be seen are really one. Boys leave school not later than 19 years old. On many grounds the Committee think that the youths should be passed direct from the schools to the military colleges. In expressing this opinion the Committee do not consider that they favour any particular class of candidate, but that the Army receives the same class of candidate under circumstances more advantageous to the Army and to the youths themselves. The Committee, therefore, do not recommend any alteration in the age of admission to Woolwich or Sandhurst.

CLASS II. (Any three subjects may be taken up, but for Woolwich one of the three must be Chemistry and Heat.)

	Marks.
1. Pure Mathematics, including the elements of differential and integral calculus	2,000
2. Applied Mathematics	2,000
3. German or French (300 for colloquial), as alternating with the same group in Class I.	2,000
4. Latin	2,000
5. Greek	2,000
6. English history	2,000
7. Chemistry (inorganic), and Heat.	2,000
8. Electricity, magnetism, and light	2,000
9. Geography—political and physical, and Geology	2,000
10. Biology, including animal and vegetable physiology	2,000

Candidates required only to qualify at the entrance examination.

Queen's Cadets and Militia candidates.

26. Evidence was given as to the low standard of attainments of the candidates who are required only to qualify at the entrance examination for Sandhurst, in order either to enter that College, as Queen's Cadets, &c., or to enter the Militia with a view to passing into the Army subsequently, and the Committee think it would be of advantage to the Army that that standard should be raised. The Committee refer particularly to the evidence of Sir R. Buller, Adjutant-General, which was to the effect that an undue proportion of Militia candidates fail in their subsequent examinations in the Army. General Clive remarks that the present low standard of Queen's Cadets, &c., as compared with the other cadets, seriously affects the working of the classes during the course at Sandhurst. The Committee accordingly support the proposal of Lord Sandhurst in paragraph 9 (1) in the Report on Queen's Cadets, &c., that the minimum qualification for those cadets should be raised to 5,000 marks, and they would also extend that recommendation to the Militia and other candidates, who are required only to qualify.

Buller, 1613–14.

Clive, 1650.

Appendix XXII.

University candidates.

27. Lastly, there remains the question of the commissions given to University candidates. It will be seen from Appendix XX., that it is doubtful whether the candidates who come from the Universities are really entitled to the special advantages given them. The Committee think that no candidate from the University should be accepted unless he shall have passed all the examinations necessary for the first degree.

Permanency of system recommended.

28. Finally, the Committee recommend that if alterations are made in accordance with these or any of these suggestions, any new arrangements should remain unaltered long enough thoroughly to test their value. No doubt due notice must be given of changes in entrance examinations, but the recommendations bearing on the subject of the medical test in paragraphs 9, 10 and 11 might be carried out without delay.

[OVER.

SUMMARY OF RECOMMENDATIONS.

1. That the preliminary examination in literary subjects be not restored (paragraph 5).

2. That the regulations concerning the medical examination be revised so that—

(*a.*) The requirements as to a medical test may be clearly defined, strictly adhered to, and brought specially to the notice of parents and teachers (paragraphs 8 and 9).

(*b.*) The requirements should be framed so as to take into consideration differences of age, and a due proportion between height, weight, and chest measurement (paragraph 10).

(*c.*) The examinations should be conducted by Boards of Medical Officers specially selected for the purpose (paragraph 11).

3. That the present classification of subjects in the competitive examinations for Woolwich and Sandhurst be altered—

(*a.*) By the amalgamation of Class III. in Classes I. and II. (paragraphs 21, 22 (ii.) and 23 (iv.)).

(*b.*) By the transfer of Latin from Class I. to Class II. (paragraphs 20, 21, and 25).

(*c.*) By extending the choice in Class II. from two to three subjects (paragraph 21).

(*d.*) By requiring candidates for Woolwich to take Chemistry and Heat as one of the three subjects allowed in Class II. (paragraphs 20 and 21).

4. Further that the following minor changes be made in the grouping and marking of subjects, viz.:—

A.—Woolwich.

(*a.*) That the maximum number of marks assigned to mathematics in Class I. be reduced from 3,500 to 3,000, the present difference in the ranges required in this subject for Woolwich and Sandhurst respectively being maintained (paragraphs 21 and 25).

B.—Woolwich and Sandhurst.

(*b.*) That the marks for colloquial in the modern languages be raised from 200 to 300, the total for the subject remaining as at present (paragraph 22 (i.)).

(*c.*) That the standard in geometrical drawing be raised, possibly by including some part of descriptive geometry (paragraph 22 (iii.)).

(*d.*) That English composition include a précis or digest (paragraph 22 (iv.)).

(*e.*) That no minimum be required in any subject (except in Mathematics in Class I. for Woolwich) or in the aggregate of marks (paragraph 22 (v.)).

(*f.*) That Higher Mathematics be divided into two subjects, and that the calculus be included (paragraph 23 (i.)).

(*g.*) That the general paper in English history contain no questions on events earlier than the Conquest, and that the special paper be set in distinctively modern history (paragraph 23 (ii.)).

17. The entrance examination having for its object to make a selection of boys of good education who are about to leave school the Committee are not inclined to recommend any alteration of the principle on which it is based, which, in their opinion, should be the test of a good general education; but while no alteration of principle is recommended, they desire to suggest some modification in the grouping and marking of subjects. In regard to Woolwich they consider that as the cadets will enter the scientific corps of the Army, the entrance examination might be made more special, in the direction of science. At the same time they are distinctly of opinion that the examinations for Woolwich and Sandhurst should be such that a boy who fails for the former should still be able without taking additional subjects to try for the latter.

Object of the literary competitive examinations.

18. In regard to the subjects in which the youths should be examined for Woolwich and Sandhurst, many plans and combinations of subjects were put forward. By some it was proposed that the number of subjects and the choice allowed to the candidates should be practically unlimited; while by others it was suggested that the number and choice should be so far limited that a candidate should only be allowed to present himself for examination in a given number of subjects, to be selected from a wide though less extensive range. The Committee do not support either of these proposals. They fear that the tendency of either plan would be to subordinate the interests of education to success in the examination, and that schoolmasters and tutors might be tempted to advise their pupils in the selection of subjects to look rather to what would appear to yield most marks, than to what would rightly be deemed to possess higher educational value.

Subjects of examination.

19. The principle of the present system is a classification of subjects of general education, which is made in such a way that candidates are practically required to take up a limited number of subjects (Classes I. and III.), and are allowed to take up two out of a number of other subjects, the selection of the two being left to the candidates themselves (Class II.). This plan makes it easier for the candidates to pass directly from the schools to the military colleges, and also places the great majority, who fail, at no disadvantage in seeking another profession. On the whole, the Committee consider that it best meets the requirements. At the same time, they desire to see some changes in points of detail.

Present system of classification of subjects.

Appendix II.

20. While the Committee are of opinion that the existing similarity of the examinations for Woolwich and Sandhurst should continue, they recommend that Chemistry (inorganic) and Heat should be made practically obligatory for Woolwich. The Committee make this selection of a scientific subject as they understand that the schools can very well teach Chemistry and Heat, and that a sufficient knowledge of these subjects can be attained by the candidates to enable the authorities at Woolwich to dispense with elementary teaching in Chemistry, and thus facilitate the instruction in Electricity. These considerations do not apply to Sandhurst. But while the Committee seek to impose Chemistry and Heat for Woolwich, they do not think it advisable to increase the number of subjects which are not at the option of the candidates.

Change recommended.

21. They therefore recommend the restriction of Class I. to four principal subjects of examination, with the addition of Freehand Drawing, with a maximum of 500 marks, and in Class II. that a candidate should take up three subjects; but that for Woolwich one of those subjects must be Chemistry (inorganic) and Heat, while for Sandhurst any three of the subjects in this class might be chosen. The present difference between the range of Mathematics required for Woolwich and for Sandhurst will continue.

22. Further, with reference to the subjects of Class I., the Committee recommend the following minor changes:—

Minor changes recommended in detail of Class I. subjects.

(i.) That the marks for colloquial in the modern languages be raised from 200 to 300, the total for the subject remaining as at present.

(ii.) That Class III. be abolished, and Freehand Drawing included in Class I. with 500 marks. Geography, the other subject in Class III., will be transferred to Class II.

(iii.) That Geometrical Drawing retain its present maximum mark of 1,000; and it is suggested that, in view of the report of the Professor of Fortification at Sandhurst, the standard in this subject be raised, possibly by including some part of Descriptive Geometry.

Appendix XVI. Grant, 1340.

(iv.) That English composition include a précis or digest, regard being had to Handwriting and Spelling.

(v.) That no minimum be required in any subject (except in mathematics in Class I. for Woolwich), or in the aggregate of marks, as the number of competitors secures the object for which a minimum of marks has hitherto been required.

Minor changes recommended in detail of Class II.

23. As regards Class II., the Committee propose some further modifications.

(i.) It was represented that justice is not done to boys of Mathematical abilities by making Higher Mathematics of the range laid down in the syllabus only one subject, and the Committee therefore propose to add the Calculus, and to divide the subject into Pure Mathematics and Applied Mathematics, with a maximum of 2,000 marks for each.

Durnford, 420; James, 631; Baker, 950; Percival, 1547; Phillpotts, 1760; Courthope, 1930.

(ii.) In English History, it is suggested that the questions in the general paper should not be on events earlier than the Conquest, while the special paper should be set in distinctively modern history.

(iii.) The addition of Biology to the voluntary subjects is recommended.

(iv.) It is suggested that the subject in Class II., now described as Physiography and Geology, be enlarged by the addition of political Geography.

Suggestion that the examinations for Woolwich and Sandhurst be made identical.

24. The Committee suggest that perhaps it might be convenient and tend to simplification if the examinations for Woolwich and Sandhurst, now similar in their nature, were made identical, so that there might be only one list of candidates, and that candidates, according to their places in order of merit, might have the option of going to Woolwich or Sandhurst, if qualified. So far as they are able to judge, they do not see any difficulties attending such a plan. If, owing to difficulties in administration and organization of Woolwich and Sandhurst, it is in your opinion desirable to retain the separate examinations for Woolwich and Sandhurst, the Committee still recommend that the subjects for both examinations remain as tabulated.

New Syllabus.

25. The syllabus of subjects and total marks assigned to each, if the recommendations of the Committee were adopted, would stand as follows:—

CLASS I. (All subjects may be taken up.)

	Marks.
1. Mathematics	3,000
2. Geometrical drawing	1,000
3. French or German (300 for colloquial)	2,000
4. English	1,000
5. Freehand drawing	500

(*h.*) That Biology be added to the subjects of Class II. (paragraph 23 (iii.)).

(*i.*) That Physiography and Geology be enlarged by the addition of political Geography (paragraph 23 (iv.)).

(*j.*) That Heat be joined to Chemistry instead of being put with Electricity, Magnetism, and Light (paragraphs 20 and 25).

5. That the minimum qualification required of candidates who do not compete at the entrance examinations be raised to 5,000 marks (paragraph 26.)

6. That candidates from the University be required to have passed all the examinations necessary for the first degree (paragraph 27).

7. That any new system decided upon be fairly permanent, and that the recommendations relating to the medical examinations be carried out without delay (paragraph 28).

SANDHURST.

*FRANCIS HERVEY.

*R. GIPPS.

WILBRAHAM LENNOX.

HENRY E. ROSCOE.

W. A. HUNTER.

J. G. SWIFT MACNEILL.

HENRY J. ROBY.

*C. A. WHITMORE.

R. H. BRADE,
Secretary.

27*th April*, 1894.

* We, against whose names an asterisk appears, have signed the Report subject to the Dissent contained in the following memoranda.

F. HERVEY.

R. GIPPS.

C. A. WHITMORE.

DISSENT from the Report as regards particular recommendations, signed by Lieut-General Sir Reginald Gipps, K.C.B., Lord Francis Hervey, and Mr. Whitmore, M.P.

We concur upon the whole, with the introductory part of the Report, which has been approved by the majority of the Committee, and with many of the specific conclusions at which they have arrived, as, for instance, those which relate to the abolition of the old preliminary examination, the limits of age to be imposed upon candidates for Woolwich and Sandhurst respectively, and the institution of a more stringent and better defined medical test.

We agree also with the opinion expressed in the Report that in present circumstances there does not appear to be any urgent call for the introduction of a system of awarding marks for bodily robustness or for proficiency in athletic exercises.

We have no quarrel with the suggestion that the special advantages which are offered to members of the Universities should be restricted to the case of candidates who, by passing the appropriate examinations, shall have become entitled to take a degree, and we assent in principle to the recommendation that the standard of qualification in literary subjects demanded of privileged cadets and of Militia Officers who desire to obtain commissions in the Regular Army should be materially raised. But we think that, not merely in order to avoid injustice to individuals, but also to lessen difficulties that may occur in connection with the officering of the Militia, the process of stiffening the qualifying test should be extended over a period of three or four years.

There are other important points with respect to which we regret that we cannot express acquiescence in the views of our colleagues.

1. It seems to us that the suggestion of a complete fusion of the competitions for Woolwich and Sandhurst has been somewhat hastily adopted. So far as the machinery of examination is concerned, there would probably be little difficulty in making the indicated change. But the consequences of such a change from other points of view, and especially as bearing upon the efficiency of the scientific branches of the Service, might prove to be of a serious character.

2. We see no advantage in the proposal to remove Latin from its present position in Class I., and we cannot but observe that while this proposal is at variance with the overwhelming preponderance of the evidence * taken by the Committee, it stands in the Report unrecommended by any show of reason or expediency. Agreeing as we do with the opinions expressed in paragraph 15 of the Report, we are somewhat at a loss to appreciate the motives which have actuated our colleagues in recommending a change which though perhaps slight on a superficial view, must tend, in our opinion, to deprive the Army of the class of officer which by universal consent it is most desired to attract. We conceive that the business of the War Office is to follow not to lead the general course of liberal education, and so long as Latin is regarded as an essential factor in that course, it should be correspondingly treated in the schemes of the military examination.

F. HERVEY.

R. GIPPS.

C. A. WHITMORE.

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* Delavoye, 42, 43; Biddulph 160; Courthope, 343, 1892-99; Durnford, 403, 409; Pendlebury, 476, 477; Moriarty, 779, 791; Baker, 901, 902; Scoones, 1030, 1031; Gurney, 1185, 1187; Stirling, 1288; Burnett, 1390-92; Percival, 1520; Buller, 1602; Welldon, 1735; Phillpotts, 1750, 1751.

Dissent from particular recommendations of the Committee, signed by Lord Francis Hervey.

I desire to add some observations on certain points of detail.

1. I think it is inexpedient to demand an acquaintance with political and commercial Geography as a part of the subject in Class II., which, in the existing scheme, is described as physiography and geology. It is not contended that this subject is too restricted in extent, or of insufficient difficulty in relation to other subjects in Class II. Even were the fact otherwise, the proper course, in my opinion, would be to raise the standard of attainment, but not to degrade the study by the admixture of matter which exercises the memory only, and therefore, leads to mere cramming. Further, placing a subject in Class II. does not ensure its being taken up by anyone, and, therefore, the recommendation contained in the Report fails to satisfy the claims of those who insist upon the necessity of some acquaintance with geography on the part of all candidates.

If it should be thought wise to insist upon this, I would suggest that commercial and political geography should be placed, as now, with freehand drawing in a third class, with option to candidates to take up either or both. Practically, all would take up both.

2. If I venture to dissent from the recommendation that biology should be added to the subjects scheduled in Class II., it is assuredly not because I, in any way, underrate the interest or value of this branch of science. But the experience of the Oxford and Cambridge Schools Examination Board seems to show that in all likelihood the number of candidates offering this subject will be extremely small. The advantage of its introduction is therefore problematical, and will be, at any rate, very slight. But the disadvantages of increasing the length of an examination which is regarded by many as already too long, of additional expense, and of increased difficulty in preserving an equal standard of value among the subjects in Class II. are certain, and not inconsiderable, while the introduction of one subject not usually adopted in the course of school instruction makes it harder to resist the claims which may be advanced by the advocates of other such subjects.

3. Having regard to the needs of the Artillery and the Engineers, I concur in the view that the examination of candidates for Woolwich should be to some extent specialized. But, in order to harmonize, as far as possible, this specialization with the varied preferences of different schools, I think it would be better, instead of singling out Chemistry and Heat for inclusion in Class I., to make it compulsory upon candidates offering subjects in Class II., to select one at least of such subjects from a group comprising higher mathematics, chemistry, and physics. The reports of the Woolwich Professors do not indicate that they attach any singular importance to chemistry, and there is an obvious hardship in coercing schools which bestow special attention upon physics to change their methods.

For the sake of clearness, I append tables, showing in rough outline, for Woolwich and Sandhurst respectively, a scheme which I prefer to that which has been adopted by the majority of the Committee.

F. HERVEY.

[OVER.

For Woolwich.

Class I. (All subjects in this class may be taken up; and in mathematics, candidates, in order to be eligible for admission to Woolwich, must obtain such an aggregate of marks as may satisfy the Civil Service Commissioners.)

	Marks.
1. Mathematics:—	
(*a.*) Arithmetic	3,500
(*b.*) Algebra and logarithms	
(*c.*) Euclid, Books I.—IV. and VI.	
(*d.*) Plane trigonometry and mensuration	
(*e.*) Statics or dynamics	
2. Geometrical drawing	1,000
3. Latin	2,000
4. French or German	2,000
5. English composition	1,000

Class II. (Two subjects in this class may be taken up, but one, at least must, be in the first group.)

Group I.—	
1. Higher mathematics, pure	2,000
2. „ „ mixed	2,000
3. Chemistry and heat	2,000
4. Light, sound, electricity, and magnetism	2,000
Group II.—	
5. German or French, alternating with subject 4 in Class I.	2,000
6. Greek	2,000
7. English history	2,000
8. Physiography and geology	2,000

Class III. (Both subjects may be taken up.)

1. Freehand drawing	500
2. Modern, political, and commercial geography	500

For Sandhurst.

Class I. (All subjects in this class may be taken up.)

1. Mathematics—	
(*a.*) Arithmetic	3,000
(*b.*) Algebra and logarithms	
(*c.*) Euclid, Books I.–IV. and VI.	
(*d.*) Plane trigonometry and mensuration	
2. Geometrical drawing	1,000
3. Latin	2,000
4. French or German	2,000
5. English composition	1,000

Class II. (Any two subjects in this class may be taken up.)

1. Higher mathematics, pure	2,000
2. Higher mathematics, mixed	2,000
3. Chemistry and heat	2,000
4. Light, sound, electricity, and magnetism	2,000
5. German or French, alternating with subject 4 in Class I. ..	2,000
6. Greek	2,000
7. English history	2,000
8. Physiography and geology	2,000

Class III. (Both subjects may be taken up.)

1. Freehand drawing	500
2. Modern political and commercial geography	500

LIST OF WITNESSES.

Day of Examination.	Name, &c.	Pages of Evidence.
10th August, 1893 ..	Colonel A. M. Delavoye	1 to 9
10th „ „ ..	General Sir R. Biddulph, G.C.M.G., C.B.	9 to 12
11th „ „ ..	Mr. W. J. Courthope	13 to 19
15th November, 1893 ..	Mr. Walter Durnford	20 to 24
15th „ „ ..	Mr. C. Pendlebury	24 to 27
17th „ „ ..	Captain Walter H. James	27 to 32
17th „ „ ..	Mr. H. Wolffram	32 to 36
21st „ „ ..	Mr. L. L. Moriarty	36 to 41
21st „ „ ..	Mr. W. M. Baker	41 to 45
24th „ „ ..	Mr. W. B. Scoones	45 to 51
24th „ „ ..	Rev. H. P. Gurney	51 to 54
28th „ „ ..	Lieut.-General Sir W. Stirling, K.C.B., R.A.	55 to 57
28th „ „ ..	Lieut.-General R. Grant, C.B.	57 to 60
28th „ „ ..	Colonel C. J. Burnett, C.B.	60
28th „ „ ..	Surgeon-Lieut.-Colonel W. C. Gasteen, M.B.	61
28th „ „ ..	Mr. W. A. Shenstone	61 to 65
1st December, 1893 ..	Rev. J. Percival, L.L.D.	66 to 70
1st „ „ ..	General Sir R. H. Buller, V.C., K.C.B., K.C.M.G.	70 to 72
1st „ „ ..	H.R.H. the Duke of Cambridge, K.G. ..	72 to 73
1st „ „ ..	Lieut.-General E. H. Clive	73 to 74
1st „ „ ..	Brigade Surgeon-Lieut.-Colonel A. F. S. Clarke, M.D.	74 to 75
5th „ „ ..	Inspector-General J. N. Dick, C.B., R.N.	76 to 77
5th „ „ ..	Rev. J. E. C. Welldon, M.A.	77 to 78
5th „ „ ..	Mr. J. S. Phillpotts	79 to 80
8th „ „ ..	Surgeon-Major-General J. Jameson, M.D.	81 to 83
8th „ „ ..	General Sir G. T. Chesney, K.C.B., C.S.I., C.I.E., R.E., M.P.	83 to 86
15th „ „ ..	Mr. W. J. Courthope, *further examined*. .	87 to 93
15th „ „ ..	Mr. Walter Wren	93 to 97

COMMITTEE

ON

ENTRANCE EXAMINATIONS FOR COMMISSIONS IN THE ARMY.

WAR OFFICE,

THURSDAY, 10TH AUGUST, 1893.

Present:

Lord SANDHURST, *Chairman.*

Members:

Lord FRANCIS HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Dr. W. A. HUNTER, M.P.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. R. G. C. MOWBRAY, M.P.
Mr. H. J. ROBY, M.P.

Mr. R. H. BRADE, *Secretary.*

Colonel A. M. DELAVOYE, *examined.*

1. *The Chairman.* You are the Assistant Director of Military Education, I believe?—Yes.

2. For how long have you been employed in your present branch?—Since 1888 I have had to deal with the education of Officers.

3. Are you speaking now of the education of Officers after they have passed into the Army or before?—While they are cadets, and after they join the Service. Before they enter the Army they are dealt with by the Civil Service Commissioners.

4. Can you state the changes which have taken place in the entrance examinations since 1870?—Yes. The scheme proposed by the Royal Commission of 1870 for the examinations for entrance to the Royal Military College was—

I.—Qualifying examination, known later as "Preliminary."

1. Mathematics, viz.:—
   - *a.* Arithmetic.
   - *b.* Algebra, to simple equations.
   - *c.* Geometry. Euclid. Book I.
2. French or German.
3. English writing from dictation.
4. Freehand drawing.

The qualification in these subjects not to exceed—

Mathematics, $\frac{1}{3}$ of total allotted to the paper.
French or German, $\frac{1}{4}$.
Drawing, $\frac{1}{4}$.

II.—Competitive examination, known later as the "Further."

1. Mathematics, including the subjects of the qualifying examination with more advanced geometry and algebra, and plane trigonometry.
2. English composition (tested by the power of writing an essay, letter or précis) and English literature, limited to specified authors; or

2*a.* English composition as above and English history, the examination in the latter subject being limited to certain fixed periods notified beforehand.

3. Latin.
4. Greek.
5. French. The examination to be partly colloquial.
6. German. Ditto.

7. Experimental sciences, limited to one of the following branches, viz., (1) chemistry, including heat; (2) electricity and magnetism.

8. Freehand (figure and landscape) drawing.

Marks for these subjects should be given in the following proportions:—

	Marks.
1. Mathematics (including 1,000 for qualifying examination) ..	4,000
2. English composition and literature	1,500
2*a*. English composition and history	1,500
3. Latin	3,000
4. Greek	2,000
5. French	2,000
6. German	2,000
7. Experimental sciences	1,500
8. Freehand drawing	1,000

Of these eight subjects a candidate should not be allowed to take up more than five, or six if freehand drawing be one of them.

A minimum of $\frac{1}{4}$ should be deducted from all marks gained by a candidate.

III.—For the entrance examination for the Royal Military Academy the only difference in the foregoing was—

Qualifying examination:—

1. Mathematics, including arithmetic, algebra, and geometry as far as the VI. Book of Euclid.

4. Geometrical drawing.

Competitive examination—

1. Mathematics, including the subjects of the qualifying examination, together with plane trigonometry, mechanics, hydrostatics, spherical trigonometry, and differential and integral calculus.

IV.—Examination. For direct commissions by qualification.

(The examination of Militia Subalterns for commissions in the Army takes its place.)

	Marks.
1. Latin	4,000
2. Greek	3,000
3. Mathematics, limited to arithmetic, geometry, algebra, and plane trigonometry	4,000
4. English composition, tested chiefly by the power of writing an essay, letter, or précis	1,000
5. French	2,000
6. German	2,000
7. History, the periods to be taken up to be notified beforehand	1,500
8. Experimental sciences, the candidate being limited to (*a*) chemistry, including heat; or (*b*) electricity and magnetism	1,500
9. Freehand drawing (figure and landscape)	1,000

Of the foregoing subjects the elementary portions of mathematics, and the English and French (or German) languages, should be considered obligatory as follows;—

1. In mathematics 1,000 marks should be given to the following subjects:—Arithmetic, geometry, I. Book. $\frac{1}{3}$ marks required for qualification.

2. English, to write in a good legible hand from dictation.

3. In French (or German), the candidate should be required to obtain at least 300 marks.

Not more than five, or six, if freehand drawing was included, could be selected.

V.—In 1872, General Orders, Nos. 52 and 65, were issued, regulating the entrance examination to the Army.

The Preliminary Examination was as follows:—

1. Mathematics, viz., (*a*) arithmetic, including vulgar and decimal fractions, proportion, and simple interest; (*b*) geometry, not beyond the standard of the 1st Book of Euclid.

2. French, German, or some other modern language; the examination being limited to a translation from the language, and grammatical questions.

3. Writing English correctly, and in a good legible hand from dictation.

4. The elements of geometrical drawing, including the construction of scales and the use of simple mathematical instruments.

5. Geography.

The "Further Examination" followed the above at an interval of two or three days. Consequently the boys had to prepare for both.

The "Further Examination" was as follows:—

	Marks.
1. Mathematics, viz., algebra, up to and including quadratic equations; the theory and use of logarithms; geometry, plane trigonometry, and mensuration	3,000
2. English composition, tested by the power of writing an essay, letter, or précis; English literature, limited to specified authors; English history, limited to certain fixed periods ..	3,000
3. Latin	3,000
4. Greek	2,000
5. French (partly colloquial)	2,000
6. German „ „	2,000
7. Experimental sciences, viz., (*a*) chemistry and heat; or (*b*) electricity and magnetism	2,000
8. General and physical geography, and geology	2,000
9. Drawing { Freehand	1,000
{ Geometrical	300

Of these nine subjects not more than five could be taken up. A certain minimum was deducted in each subject.

VI.—In 1876 the foregoing syllabuses stood good, except that geometrical drawing had to be passed in the Preliminary Examination, the marks obtained being carried forward.

The Preliminary Examination still immediately preceded the "Further."

The number of subjects to be taken up at the "Further" was reduced to four, exclusive of drawing.

A certain minimum was still deducted from each subject.

VII.—For entrance to the Royal Military Academy the subjects for the preliminary were the same as the foregoing, except that in—

Mathematics, viz. :—

(*a.*) Arithmetic and the use of common logarithms,

(*b.*) Algebra, including equations, progressions, permutations and combinations, and the binomial theorem,

(*c.*) Geometry up to the standard of the sixth book of Euclid,

(*d.*) Plane trigonometry, including the solution of triangles, were required.

A thorough knowledge of each of the four branches of mathematics was necessary.

For the "Further"—

Mathematics, viz., further questions and problems on the subjects of the qualifying examination, and the elements of the following subjects :—Theory of equation, analytical geometry, conic sections, solid geometry, differential and integral calculus, statics, and dynamics.

VIII.—In 1878 the preliminary examination for the Royal Military College was separated from the "Further" as regards time, *i.e.*, it was held in the spring and autumn of each year.

The syllabuses for the entrance examinations were as before stated.

In 1878 the present Militia examination was instituted, the literary (qualifying) examinations being the same as the foregoing.

IX.—The foregoing regulations were in force until 1885, when those for entrance to the Royal Military College were revised as follows :—

Preliminary Examination as before.

Further Examination :—

Class I.

	Marks.
1. Mathematics, up to and including mensuration	3,000
2. Latin	3,000
3. French (600 for colloquial)	3,000
4. German do. do	3,000

Class II.

1. Greek	2,000
2. Higher mathematics, up to differential calculus	2,000
3. English history	2,000
4. Experimental sciences	2,000
5. Physical geography and geology ..	2,000

Class III.

1. English composition tested by the power of writing an essay, letter, or précis	500
2. Drawing, freehand	500
3. Drawing, geometrical	500

Of these subjects candidates were not allowed to take up more than four, exclusive of Class III., nor were they allowed to take up more than one from Class II., but they might, in addition, take up all Class III.

In 1886, Lord Morley's Committee recommended that the examinations for entrance to the Royal Military Academy should be based on what had already been adopted for Sandhurst.

These regulations came into force in November, 1888. The only difference from the above was in mathematics, a portion of which was obligatory :—

	Marks.
Obligatory.—Mathematics up to elementary statics and dynamics	3,000

Class I.

1. Higher mathematics	3,000

which was taken from Class II.

X.—These regulations were carried out for a short time, when, owing to complaints from gentlemen interested in science, who pointed out that under the above regulations, the study of experimental sciences had been discouraged, the question was discussed by the military authorities and Civil Service Commissioners, and in 1891, the following syllabuses were adopted :—

The Preliminary Examinations remained the same, except that Latin was added.

Further Examination.

Class I. (Obligatory).

1. Mathematics.—A thorough knowledge of each of the following four branches of mathematics will be required :—

   (*a.*) Algebra, up to and including the binomial theorem ; the theory and use of logarithms.

   (*b.*) Euclid, Books I. to IV. and VI.

   (*c.*) Plane trigonometry, up to and including solution of triangles ; and mensuration.

   (*d.*) Statics and dynamics. Statics—The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers.

	Marks.
Dynamics—Uniform, uniformly accelerated and uniform circular motion ; falling bodies and projectiles in vacuo (analytical methods of solution will not be required)	3,000
2. Latin	2,000
3. French or German (200 for colloquial)	2,000

Class II. (any two subjects may be taken up).

	Marks.
1. Higher mathematics.—Further questions and problems on the subjects of the obligatory examination. Statics—Problems and exercises will be extended to friction The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required. Dynamics —Problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work. Analytical Geometry—Problems on straight line and circle. Conic Sections—Elementary properties with easy problems, both on the analytical and geometrical methods..	2,000
2. German or French, as alternating with subject 3 in Class I.	2,000

	Marks.
3. Greek	2,000
4. English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
5. Chemistry, elements of inorganic chemistry	2,000
6. Physics—Elementary properties of electricity, magnetism, heat, light, sound	2,000
7. Physical geography and geology, chiefly economic, including the recognition of the more familiar minerals and rock, and their properties and uses	2,000

Class III. (all three subjects may be taken up).

	Marks.
1. English composition, tested by the power of writing an essay or letter..	500
2. Drawing, freehand	500
3. Drawing, geometrical	1,000

XI.—For the Royal Military College the above holds good, except that in mathematics, Class I. only—

	Marks.
Algebra, up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I. to VI.; plane trigonometry, up to and including solution of triangles and mensuration	2,500

XII.—The literary qualifying examination for Militia candidates is the same as for the Royal Military College. The preliminary examination has now been abolished, and the Committee has to decide on the competitive examinations for entrance to the Army.

5. I presume there are cases in which other examinations are allowed to take the place of these examinations?—Yes, for instance, candidates who have passed certain examinations at the Universities are exempt. As a matter of fact, there are always enough candidates up for each examination to make it competitive, but if there were only as many University men up as there were vacancies then they would take the places by means of what they had done at the Universities.

6. If the supply exceeds the demand do those University candidates undergo a less rigid examination?—No, they would be examined on exactly the same syllabus.

7. *Mr. Hunter.* I suppose a person who took French in the "obligatory" could not take French in Class II.?—That is so, he would possibly take German.

8. *The Chairman.* Taking the Royal Military Academy at Woolwich, and dealing with Class II., what are the "two" subjects most generally taken up?—I could not say definitely without looking at the reports of the Civil Service Commissioners, but I should say that probably it would be found that "Higher Mathematics" and "German" are the two subjects most generally selected.

General Sir W. Lennox. Nearly everyone takes up Higher Mathematics.

Lord F. Hervey. I find that at Sandhurst the general combination is German and English history.

9. *The Chairman.* In your opinion does the examination as it stands now meet the requirements of the case?—I think so, we get very good candidates for the Army on this syllabus.

10. Is that the opinion of the military authorities, so far as you know?—Yes, I think so.

11. When was this present syllabus first started?—The syllabus came out in 1888, but there have been various changes since; I should say the present syllabus was formed probably in 1891.

12. *General Sir W. Lennox.* You say the present regulations came in in 1891, the students are two years at Woolwich, and as this is 1893, it follows that those now at Woolwich did not come in under these regulations?—The majority must have passed in on the new regulations. There is a great deal said about the changes, but it will be seen that the regulations have remained very much the same right on from 1870; the actual changes made have been only very small, mostly directing the attention of candidates to various particular points, the subjects remaining the same.

13. *The Chairman.* Have not changes been made in the classification?—Yes, it has from time to time been found necessary to induce the candidates to go in for certain subjects.

Mr. Roby. Are there any returns showing how the vacancies at Woolwich and Sandhurst are filled up, distinguishing those allotted to other candidates?

Lord F. Hervey. You will find all that information in the printed reports issued by the Civil Service Commissioners.

14. *The Chairman.* How many vacancies are there at Woolwich in the course of the year?—50 for each half-year, at present.

15. What are the vacancies at Sandhurst?—120 each half-year, of which, I think, 100 are for general competition, eight for men from the Universities, some few for the West India Regiment, and the remainder are taken by Queen's Cadets, Queen's Honorary Cadets, and Queen's Indian Cadets.

16. *Mr. Hunter.* What is the total average number of commissions issued each year?—For the whole Army, I think about 600 a year.

17. *The Chairman.* How many commissions are issued each year for the Militia candidates?—The number for the Militia has varied from time to time, it started at 30, and then went up to 75, it afterwards went up to 100, then down again to 75, and now it is 52 for the half-year.

18. *Mr. Mowbray.* Is that number fixed without any regard to the number of candidates?—The number varies according to the requirements of the Service, as the Military Secretary requires Officers so he apportions to the Militia the number required.

19. *Mr. Roby.* Do I understand that the eight allotted to the Universities are confined to University men?—The students from the Universities compete amongst themselves for those eight places.

20. Can they compete also for the remainder out of the 85 or 100 places?—Yes, if they like, there is nothing to prevent their doing so.

21. How is that 52 for the Militia divided?—50 for the Infantry and Cavalry, and two for the Artillery.

22. How is the matter as between the Cavalry and the Infantry decided at Sandhurst, do the candidates put down their names for the Cavalry and Infantry?—Yes. The demand for Cavalry Officers is greater than the demand for Infantry Officers, and it very often happens that a candidate will get into the Cavalry with fewer marks than he would have to get for the Infantry.

23. Is there then a greater competition for the Infantry appointments?—Yes, much greater.

Lieut.-General Sir R. Gipps. The matter is arranged in this way, the men state in the first instance whether they are going in for Cavalry or Infantry, or Infantry and Cavalry, or Cavalry and Infantry; they show their preference to start with. We give so many Cavalry Commissions and so many Infantry Commissions, and if there are not sufficient Cavalry men in the top numbers we stop the Infantry and go below them for the Cavalry. If a man puts down Infantry and Cavalry he may be successful for the Cavalry, and if one of the Infantry candidates fail to

pass finally, then the other man would be taken out of the Cavalry and put into the Infantry. That is the rule we follow, because the men are not allowed to change.

Mr. Hunter. Supposing a man said Cavalry or Infantry, but Cavalry first?

Lieut.-General Sir R. Gipps. Then he must go to the Cavalry.

Mr. Hunter. Even if he came out first in the whole examination?

Lieut.-General Sir R. Gipps. Yes, we have to keep to that rule purely as a matter of justice.

Mr. Roby. How do the Officers get into the Marines?

The Witness. Commissions are offered according to requirements to the candidates for Woolwich and Sandhurst, and I believe in both cases that men successful in the competitions have occasionally preferred to take commissions in the Marine Light Infantry and in the Marine Artillery, because they obtain their Commissions sooner.

24. Is there any education required?—The same as for our entrance examinations; afterwards the Officers are very well educated at Eastney and Greenwich.

25. *The Chairman.* Are the Marine examinations managed by the War Office or by the Admiralty?—By the Admiralty, we have nothing to do with them.

26. *Mr. Mowbray.* How do you manage about the West India Regiment?—The candidates compete amongst themselves at the Sandhurst examinations.

27. Is not the limit of age greater?—Yes.

28. Then do they compete with younger men?—No, they go up for the same examinations, but being above the age for Sandhurst, they can only go in for the West India Regiment, and, therefore, they practically compete amongst themselves for the places.

29. *The Chairman.* Have they a lower qualification?—I should say that possibly the bottom man on the West India list would get into Sandhurst with a lower number of marks than other men, because the competition is small.

30. I understand that as a military man you are satisfied with the entrance examination as it exists to-day?—Yes, that is when the subjects from the preliminary list are added to it, because the candidate we get into the Army on this syllabus leaves very little, if anything, to be desired.

31. Does this syllabus give any "pull," so to speak, to the public schools?—It ought to, especially now that the limit of age has been reduced to 19 for Sandhurst.

32. Have you ever heard any wish expressed among your expert Officers to make any alteration in this syllabus with a view to giving a larger place to Science?—We have heard a great deal about Science being placed at a disadvantage owing to the education given at the Academy. It was said that it was not worth while to take up Science at the entrance examination, because a man could scrape through with the education he got at the Academy, and, therefore, it was better to take up a second Language which could be taken as a voluntary subject in the Academy. That was brought to the notice of the authorities, a committee was appointed to enquire into the whole subject, and when the recommendations of that committee are carried out, Science will be in a better position at the Academy than it has ever been before, because the time now taken up at the Academy with voluntary Languages will then be devoted to Electricity and Physics.

33. But that has nothing to do with the entrance examinations, has it?—Yes, because the course of education at Woolwich really leads to the choice of subjects in the entrance examinations. Those who teach, say to a candidate, it is no good your doing Science, you will be able to scrape through with what you learn there, take up German instead, because you can take that as a voluntary Language in the Academy.

34. Then if the course at the Academy were on a higher standard the thing would be automatic, would it not?—Yes, that would bring Science forward no doubt.

35. *Mr. Roby.* Is not a certain amount of Science required on leaving Woolwich?—Yes, they are all required to take up Science there.

36. *The Chairman.* The only way to overcome the present difficulty is to put Science on the same plane as Languages, is it not?—It is on the same plane as all subjects that are not considered absolutely and actually necessary for a soldier.

37. Would you put Science on the same level in the obligatory class as Latin for instance?—You can just as well have it as Latin. You are obliged to have Latin obligatory because the schools will teach Latin.

38. Is there not a converse to that, namely, that if you make your examinations to include certain subjects the schools will have to teach them?—The large schools do in a great measure comply with our requirements, but their systems are, as a rule, those known as classical, and they cannot be changed suddenly.

39. Which do you think is the most necessary for the Service?—I would much sooner see a man proficient in Science than in Latin.

40. *Mr. Roby.* Those examinations have two sides, they may be made the means of testing the knowledge necessary for an individual, or they may be made the means of selecting individuals from the existing places of education?—Quite so. There is also this further question, 600 men go up for 100 vacancies, and for the 500 who do not get in possibly Latin may he a better thing than Science.

41. But do you think Science is a good subject to select for an examination, quite irrespective of its use afterwards?—Do you mean as against Latin?

42. Yes?—No, I do not; the value of Latin with regard to other languages makes me lean towards the side of Latin, quite apart from Army views.

43. I am talking now of the existing systems of education which will enable you to drop upon the right boys by a test of their powers developed up to 18 years of age?—Then I should say Latin. Science to some people is very interesting as far as they go in it, but they do not go far enough.

44. *Mr. Hunter.* Is the hardness of a task any proof of its value in mental training?—I think so. Hard tasks are generally selected as tests of mental training.

Lieut.-General Sir R. Gipps. But you must deal differently with Officers for the Royal Engineers and with Officers for other arms of the Regular Army. The Engineers is a scientific corps, and with them Science is essential, in the other corps for good Officers you want men with good common sense, and I believe that the study of Latin is what gives a man a good groundwork, and a good lead up to his subsequent career.

Mr. Mowbray. If you make an examination of such a kind that the 500 men who fail are thrown out of the ordinary occupations of life, do not you tend to diminish the competition for appointments as Officers?

Lieut.-General Sir R. Gipps. We have not done so as yet.

Mr. Roby. Have you had any experience as to the better selection you have got since you made Latin an obligatory subject?

The Witness. I do not think there is any difference one way or the other.

45. *Mr. MacNeill.* Is not Latin brought in here as a compulsory subject in order to make the public schools more or less nurseries for commissions in the Army, and in order to give a boy in the public schools an advantage over others?—It has always been the practice to endeavour to obtain Officers for the Army from the public schools; the boys from those schools are better looked after, and better disciplined than other boys.

46. And you get your candidates almost exclusively from one class of society?—I do not think so, all classes are represented.

47. Is it not the case that the Head Masters of schools put what we practical men would consider a disproportionate value upon the dead languages, and does not that disproportionate value attached by the Head Masters to the dead languages influence those who set the examinations for the Army because they feel that they must give a value to Latin which they otherwise would not give it?—You must remember that that is the system of education in England, and I do not know that it has any effect upon the examinations, or upon those who lay out the syllabuses beyond this, that it is generally acknowledged that a classical education is not a bad thing, and therefore it should not be put on one side and other subjects brought to the front, simply because, by some, they are considered more useful.

48. *Mr. Hunter.* The subjects are divided into "obligatory" and "optional," what is the basis of that division; what are "obligatory" subjects?—The military authorities require that all Officers shall know certain subjects. One of those subjects is Elementary Mathematics, and when I say "Elementary" I mean they should not go too high. Another thing they require is that they shall be able to write their own language legibly and in proper form.

49. But English is not compulsory?—It will be; it is in Class III. now. But where you say "you may," you practically say "you must," because the candidates all take it, owing to the severe competition.

50. If you are to have any "obligatory" subjects at all, should they not be confined to those subjects which the authorities consider are indispensable to a military Officer?—Yes, we also require either French or German.

51. *Mr. Roby.* Do you say that one of those is essential?—Yes. Then there is Geography. We want a man not to say that Brazil is in the centre of Africa, as I believe some of them have done. We also require a knowledge of Geometrical Drawing, because we cannot teach Fortification, or Topography without a knowledge of Plane Geometrical Drawing.

52. And you require that knowledge before they come to you?—Yes, because with the time at our disposal we cannot spare any in which to teach students that. A knowledge of those five subjects we want, and we insist upon having it, but we are delighted to see the candidates go higher.

53. *General Sir W. Lennox.* Since when has Latin been one of the subjects for the Preliminary?—Since 1891.

54. Was it made one of the "obligatory" subjects at the same time?—Yes.

55. *Mr. MacNeill.* Was not that brought about by the direct pressure of the public schools?—I cannot say. We have always found that the public schoolmasters have their own opinions upon these subjects, but I do not know that they look upon it as a very great grievance if their opinions are not always followed. Some prefer Classics to Science and *vice versâ*.

56. *Mr. Hunter.* As long as you give Latin fair marks it must satisfy them, surely?—Yes.

57. *General Sir W. Lennox.* Are candidates certified as qualified, who have received only a few or no marks in Latin?—I cannot say off-hand, but I think I am right in supposing they are. I think it would be very hard upon a candidate, who does not qualify in Latin, to be excluded from the Army, when perhaps he may be a brilliant mathematician, or a first rate French scholar. I think fixing a minimum in such a subject as that would be a wrong thing to do.

58. Then instead of calling Latin an "obligatory" subject, would it not be advisable to put it in Class III., where it may be taken or not?—Practically it is a farce to call any one of those subjects "obligatory," because there is no minimum attached to any one of them.

59. But they must take them up?—They may send in a paper with only their name on it if they like.

60. *Lord F. Hervey.* A candidate has been known to pass who gained only 12 marks in Latin, but that is quite an exception. I believe it has been for some time in contemplation to fix a minimum upon subjects?—Yes, it has always been considered desirable to fix a minimum, but the competition is so keen, and the marks run so high, that I do not think it really necessary.

61. *Mr. Hunter.* Then, practically, there is no reason for having "obligatory" subjects?—There must be certain specified subjects which we require, and of which the keenness of the competition compels a good knowledge. A moderate minimum in those subjects could not be objected to.

62. *Mr. Roby.* And excepting in the five subjects you mention, you would not require a minimum?—Not under existing conditions.

63. What kind of minimum would you require?—I think a fair minimum would be a third; possibly many people may think that is very little, but if you ask for a higher minimum you may possibly exclude a very good man.

64. What would you include in your term "Elementary Mathematics"?—I should say Arithmetic, Algebra, leaving out the Binomial Theorem; the theory and use of Logarithms; Euclid, Books I. to IV. and VI., Plane Trigonometry, up to and including solution of triangles and mensuration.

65. *Mr. Hunter.* Is any Science "obligatory" at Sandhurst?—None whatever; when once a candidate enters Sandhurst he has ceased his general education, and he confines himself solely to military subjects.

66. *General Sir W. Lennox.* Do you think it would be advantageous or beneficial to put Latin into Class III. instead of leaving it in Class I.?—I think myself that Classes I. and III. might go together.

The Chairman. Would not the point be met by putting Latin in Class II.?

General Sir W. Lennox. That would act against the public schools.

The Witness. If you take it out of Class I., I think you should put it somewhere where you will assure its being taken up.

67. *Mr. Roby.* Do you think it desirable to encourage the taking up of a great many subjects?—No. but they do not take up many now.

68. You say they will take Latin up if you put it in Class III.?—Yes, but we take English Composition out of Class III., and put it in Class I., at least, that is what we propose doing in the future.

69. Irrespective of what the Committee may recommend?—No, that is the line we propose working on until we get the Committee's recommendations.

70. When will this proposed change come into existence?—I hope it will come out at once; we have already informed all those who have asked what changes we propose to make. We propose to include Arithmetic in Class I. under the head of Mathematics; English, that is Composition, will be taken from Class III. and put into Class I.; Geography will go into Class III., and Geometrical Drawing will remain in that class as at present. Any man in the future who suceeds and yet drops any one of those subjects will have to be remarkably good in the others; in fact, he will have to be so good in them that it will be rather to the advantage of the Army to get him.

71. Will Class II. remain as at present?—Yes.

72. Are you altering the marks in any way?—That is still being discussed; English, I believe, is to have 1,000 marks when it is in Class I. I think personally I should like to see English marked as high as Latin, though it does not matter much, except from a boy's point of view, which bears on the total obtainable, what marks you give a subject.

73. I should have thought it depended entirely upon the marks whether a person got in or not?—Of course marks decide the matter, but not the amount of knowledge. It does not really matter whether you give 10 or 10,000 marks to a subject, except to a a boy, who thinks more highly of a subject if you give high marks for it irrespective of the decimal he obtains.

74. But if you give 2,000 for French and only 1,000 for English, French is relatively the better subject?—It may seem to be better.

75. But a man with a very complete knowledge of English would get only 1,000 marks, while a man with a considerably smaller knowledge of French could get the same?—Yes, but it would be well known to all concerned that in one case a complete knowledge had been shown, whereas in the other only a half knowledge.

76. How many marks are you going to give to Geography?—I think they will remain the same as at present.

77. Does not the selection of a candidate depend upon the addition of the marks gained in each subject?—Yes.

78. Then in so far as you fix the number of marks you determine the comparative value that is to be attached to the different subjects?—Yes, in a certain measure. That applies more particularly to the voluntary subjects which are now included in Class II., and in which to all subjects advisedly, the same marks have been given.

79. *Lord F. Hervey.* If we had such an examination in English as we have in French and German we should mark it up the same as those subjects, but we do not intend to bring it up to so high a pitch?—That is what I understand.

80. *Mr. MacNeill.* I understand that at present there is no examination in English Literature?—No.

Lord F. Hervey. There was once, but it was deliberately cancelled owing to its tendency to lead to cramming.

81. *Mr. Roby.* Is Précis writing, or anything of that kind, taught after the men go to Woolwich or Sandhurst?—No, if an Officer gets a staff appointment he wants that, but for ordinary Army duties it is not required.

82. Is there any practical examination at Woolwich or Sandhurst in writing reports?—At both places they have to write reports upon military subjects.

83. Do they have to analyse the contents of documents and correspondence?—No. That is dealt with at the Staff College.

84. *Mr. MacNeill.* I see that 2,000 marks are allowed for English History, but as there are six other subjects in Class II., a man need not take up English History at all?—That is so.

85. Therefore under the present arrangements a gentleman may get a commission in the Army without knowing one salient fact of the History of his own country?—Yes.

86. *The Chairman.* Does not the fact of having these two Modern Languages tend to drive pupils abroad in order to study them?—I have heard that it does, and I daresay what I hear is quite correct. In the schools no doubt they have not enough teachers to teach the colloquial part of a language as well as it can be taught abroad.

87. *Mr. Roby.* Are the candidates for Sandhurst as well qualified as those who go to Woolwich?—The competition is more severe for Sandhurst than it is for Woolwich, and the standard is generally higher, the only exception being in the case of Mathematics.

88. *The Chairman.* Is it easier for the public schools to teach Languages than Science?—I think so. To teach Science thoroughly a great deal of plant and special appliances are required, which all cost money, and very possibly after the money was spent there might not be many going in for Science, and therefore it would be easier, because cheaper, for them to teach Languages in the way they are now taught.

89. *Mr. Roby.* But there are good laboratories at some of the large schools, are there not?—Yes, I think so. A good number of the men who get into Woolwich come from the public schools, and as they do very well in Science it shows that they are taught well in the schools they come from

90. *Lord F. Hervey.* It has been stated that in some small schools it is more difficult to teach German than Science?—It seems to me that the proper teaching of Science would cost more than the proper teaching of German. In both cases there should be good teachers, and in the former, appliances as well.

91. Sometime ago a deputation of Head Masters, and others, waited upon the Secretary of State, and one of them said this with regard to the smaller public schools: "I do not say those schools are very methodical or very complete in their teachings, but a clever boy who took to Science was able to do well; but those schools cannot take up German easily, that means an increase of staff which they can scarcely afford"?—I think the amount of Science required at present for these entrance examinations does not necessitate such a laboratory as would be beyond their means, and that the proper method of teaching modern languages is not understood.

92. *The Chairman.* Do you agree with this statement which was made by Dr. Percival of Rugby, on the same occasion: "I agree with what is stated in the memorandum which has been sent you, and I believe that we are practically unanimous in the strong desire that the scientific candidates and the linguistic candidates should be on the same footing"?—Yes, I certainly agree with that, but I think that remark referred more particularly to Woolwich. For the ordinary duties of the Infantry and the Cavalry, I think 5 per cent. of Officers with a scientific knowledge is rather more than is necessary, but we should like to see a very large percentage in those branches with a good linguistic knowledge.

93. Do you observe that the general standard of professional knowledge of Officers of the Line is very much higher than it was 15 years ago?—Yes, it is a totally different thing now.

94. *Mr. Roby.* Would you say that the general knowledge is higher, too?—Our military instructors complain very bitterly to me of the amount of Arithmetic they have to teach the men who come up to them for instruction. Sometimes when they are working out a scale and have to bring in a decimal an Officer will say, "Oh, I never knew much about that, and I have forgotten the little I did know." Arithmetic will now be put into the mathematical paper. An Officer certainly ought to know Arithmetic, seeing that the non-commissioned officers have to pass such a high examination in that subject. We also receive complaints frequently from General Officers and Examiners as to illegible handwriting and confused English in composition.

95. *Mr. MacNeill.* With regard to French and German, would it not be better to have an examination in mere grammatical French and German, so as to avoid the probability of boys getting demoralized by going abroad to learn a language?—I am not aware that boys are demoralized by living abroad, but I think we have done all we can in that direction now that we have put the colloquial down to 200 marks. If we said a boy was to have 1,000 marks for conversation it would be worth his while going abroad in order to obtain a colloquial knowledge of a language, but he will not do that for 200. I would not do away with a colloquial test altogether, because there are some boys whose parents live abroad, and they should, as far as possible, benefit by the valuable knowledge they have acquired.

96. *Mr. Roby.* For the great mass of the Officers of the Army it is colloquial French and German that is required, is it not?—I think a knowledge of a language loses vastly in value unless an Officer can speak it. My own experience of French is that unless a boy has lived abroad, or unless his mother happens to be a French woman, or unless there are French servants in his family, he will never do much conversationally.

97. I quite agree with you, but I rather want to lay stress upon the fact that for Officers in the Army a knowledge of colloquial French and German is of very great importance, and therefore ought not some arrangements to be made, either before or after admission, to invite a candidate to spend some months abroad?—I quite agree with you that a colloquial

knowledge is desirable, and a recommendation has lately been made which will in all probability lead the future Officers, both of Cavalry and Infantry, to study French or German while they are at Sandhurst.

98. Is the vacation long enough for them to go abroad?—They have about four months in all, but only seven weeks in the summer, and that is not long enough for them to learn a language in.

99. *The Chairman.* Do not you let Officers go away now to learn Russian?—Yes, but not French or German.

100. Could not the same rule be applied in the case of French and German?—No doubt, were it necessary, but at the interpreters' examinations we find that there are a large number of Officers who qualify in French and German, and that shows that there is a very good knowledge of colloquial French and German in the Army as matters now stand.

101. *Mr. Roby.* Do the Officers attached to the Indian regiments pass through Woolwich and Sandhurst?—Yes, they have just the same education as other Officers.

102. *Lord F. Hervey.* Can you tell us whether the ignorance complained of applies to Officers entering the Army through Woolwich and Sandhurst, or whether it applies to Officers who enter the Army in other ways?—That would be very difficult, the remarks I have mentioned were made generally, but I dare say, on investigation, we should find that the Officers entering the Army through Woolwich and Sandhurst would be freer from those defects. I think myself that the standard for the literary examination required of Militiamen is a great deal too low.

103. *Lord F. Hervey.* Can you say, on the average, what proportion of commissions are given to men who do not pass through Sandhurst?—Yes, this year the number will be 104 for Officers of Militia.

104. Does that include the men from the Militia and from the Colonies?—Taking all classes together, I think as things stand now the number this year will be about 150.

105. Then probably the complaints made about the ignorance of Officers, in subjects which are considered essential, apply to those Officers who have not come into the Army through Sandhurst or Woolwich?—Very probably.

106. The authorities at Woolwich do not complain of the candidates who come to them either in the way of educational attainment, or in the way of physique, do they?—No, the men who pass high in the list are good men all round, they are frequently in their school cricket eleven, or football team, and they are just the men we want.

107. Do you think if the present scheme is materially altered that you run the risk of losing the class of candidate you get now?—From our point of view, and with our experience, any drastic changes would be very bad indeed.

108. The official point of view still is that it is desirable, if possible, that Officers for the Army should be supplied from the public shcools of the country?—Yes, certainly, and by public schools we mean the large schools without limitation.

109. That being the fundamental desire of the military authorities, certain things will follow. If you expect the public schools to find the bulk of the Officers of the Army, you must shape your scheme of examination in such a way as not gravely to interfere with the ordinary public school course, must you not?—Certainly.

110. A public school does not exist primarily to supply Officers for the Army, but for the purposes of general instruction?—Yes.

111. *The Chairman.* But they have now in most large schools an Army class, have they not?—Yes, in a great many schools they have.

112. Therefore you may shape your examinations how you please, and the Army class will follow you?—Yes, to a certain extent that may be done, but if the ordinary school system is too much interfered with, notwithstanding these special classes, it will be found that the boys have left and gone to private tutors.

113. Then does not that point to the fact that the Army classes are not doing their work?—I cannot say that. I know that many pass directly into the Military Colleges just the men we want.

114. *Lord F. Hervey.* Then the schools have responded to your call?—Yes, and judging by the lists that come before me from time to time, I should say the numbers coming direct from the public schools to Woolwich and Sandhurst are increasing, and as the age for Sandhurst has now been reduced to 19, I think we should get all we want in that way.

115. Is it not a fact that during the last two years the marks have generally increased also?—Yes.

116. And therefore we may take it that the pupils are better instructed than they were formerly?—Yes, if, as I believe, the same standard of marking has been maintained.

117. Arrangements have been made at Woolwich, have there not, to put an end to the unfair preference given to linguistic as against scientific men?—It has been recommended that there shall be no longer a voluntary Language.

118. And has anything been done to give further inducements to facilitate scientific instruction?—Yes.

119. I see that for the Academy at Woolwich, Chemistry and Physics are assessed together at 4,000 marks?—Yes, but when Electricity is brought in the marks may probably be raised.

120. Is Electricity not included in the Physics for Sandhurst?—It is not; but Officers generally can now acquire a knowledge of Electricity at the Artillery College.

121. Will they be assessed in future at Woolwich on something like the same plan as they are assessed in the entrance examinations, where Chemistry and Physics are divided?—I cannot say, but the value will be increased by about 50 per cent.

122. It will follow, will it not, that at the schools there will no longer be the same inducement to take up German as opposed to scientific subjects, as there has been up to the present time?—Yes.

123. *Mr. Hunter.* Putting a subject in Class II. to a certain extent disqualifies it in the competition, does it not, because you are not allowed to take up more than two subjects in that class?—By putting it in that class you leave it to the option of the candidates to take it up or not.

124. Supposing I were going in for this examination, I should like to take up Chemistry and Physics, and Physical Geography and Geology, that is a natural group, but I should be debarred from taking up one of these, should I not?—Yes, as the regulations stand now.

125. Is it not a fact then that by putting Science in Class II. and Latin in Class I., you give a preference to Latin as against Science?—Yes.

126. Would it not be a fairer thing to have only two classes instead of three, first those subjects of which, from an Army point of view, you consider a man ought to have a certain minimum knowledge, and call them "obligatory" subjects, and in the second class all those subjects which you consider "optional," with such a restriction as would prevent a man from indulging in only a smattering of a variety of subjects, and on the whole examination count only those marks which are in excess of a certain minimum?—It would seem so, but as the case now stands it comes to about the same thing; Classes I. and III. are taken up by everbody, and therefore they may be called one class.

127. Would not that make the things fair and equal as between the linguistic and the scientific men?—Yes, as far as those subjects are concerned, but I have already pointed out that we prefer two Languages in Class I., and the Sciences in Class II.

Mr. Roby. Could not a candidate be allowed to take up any number of subjects in Class II., but be prevented from indulging in a mere smattering, by being made to get a certain minimum before his marks began to count.

Lord F. Hervey. Would not that increase the length and the expense of the examination.

The Witness. Yes, certainly; as soon as you say, "you may" take up a thing the boys will go in for it.

128. *Mr. Hunter.* Would that be so if you made the minimum high?—The boys would be made to work just the same.

129. That assumes that the teacher does not know his business, it would be no good for him to teach a boy a smattering, because only those marks over a certain number would count?—Possibly, but all would strive to obtain an excess over the minimum, and that would lead to, in my opinion, excessive study, and if the schools declined to teach all the subjects, for the very good reason that they could not be properly taught with the means at their disposal, I think you would then find that the boys were driven out of the large schools, and sent to private tutors.

(*The Witness withdrew.*)

General Sir R. BIDDULPH, G.C.M.G., C.B., *examined.*

130. *The Chairman.* You were for five years Director-General of Military Education, I believe?—Yes.

131. And in 1893 you presided over a Committee on Instruction in Electricity at the Royal Military Academy at Woolwich, did you not?—Yes.

132. With reference to Class II., of the subjects set for the entrance examinations, it has been suggested that as only two subjects can be taken up it leads practically to the disqualification of the remainder of the subjects in that class?—I do not think it is quite right to speak of it as a "disqualification of the remainder." The object of the rule was to prevent superficial learning, and it was introduced with the entire concurrence of the Civil Service Commissioners, on the recommendation of a very strong Committee. An unlimited number of subjects gave rise to superficial learning, and Lord Morley's Committee expressed a very strong opinion on the point. It was said that candidates took up certain subjects solely with a view to obtaining marks, forgetting all about the subject two years afterwards, and it was to prevent that that a limitation of subjects was introduced. There is such a thing as cramming for marks, but that cannot be allowed if you have any regard for the education of the person concerned.

133. Have you ever considered whether any rearrangements of the subjects could, with advantage, be adopted?—The present syllabus is a very good one, and was framed after consultation with the Civil Service Commissioners in 1888. In that year the Commissioners formally drew the attention of the Secretary of State for War to the bad state of the general education of the candidates who were entering the Army. They thought it so serious that they felt bound to draw the Secretary of State's attention to it. It was in consequence of those representations that the present syllabus of examination was adopted. The syllabus did not very widely differ from that which had been prepared, but not adopted, for Woolwich at that time, and it was a slight modification of what had been already adopted for Sandhurst. The idea was to have a system by which men's faculties should be trained, not a system which led to the acquisition of knowledge alone, and that I conceive is the true object of education.

134. Was that the time when Latin was introduced as an "obligatory" subject?—Yes, and that was done at the special request of the Civil Service Commissioners. What the Commissioners complained of mostly was the bad state of the candidate's education in English; they said that the reading of the candidates for the Army appeared to have been confined to the reading of comic and sporting newspapers, and I was myself much struck, in reading the evidence given before Lord Morley's Committee, by the curiously slangy language in which many of the young Officers gave their evidence, which they did not appear to understand was not good English. I quite agree with the Civil Service Commissioners, that it is essential for an English Officer to have an educated acquaintance with his own tongue, and to be able to express himself as an educated man. I may say that the reason why they introduced Latin was because it appeared to be the only chance of obtaining boys who had studied grammar, and who therefore could express themselves grammatically, since English Grammar is not taught to boys in the upper classes.

135. *Mr. Roby.* Did the public school authorities say, to get a good knowledge of English, the boys ought to learn Latin?—No, not the public school authorities; we had no communications with them, it was done entirely on the suggestion of the Civil Service Commissioners.

136. So that pressure was exerted upon the Civil Service Commissioners, and not upon you?—I did not understand it in that way. What they said was that, "they are of opinion that the soundest part of the education of the public schools is at present to be found on the classical side," and there is no doubt that on the modern side of the public schools their whole efforts were directed to pass these examinations. Now, it is not so with the boys on the classical side of the public schools, because the reputation of the school does not depend upon the place the boys get in the school, but upon what they do afterwards at the Universities, whereas on the modern side it depends entirely upon the boys passing into Woolwich or Sandhurst. The whole of their aim is naturally that they should pass the examination successfully, and when that is done the object is attained.

137. *Mr. Roby.* That can only apply to schools where they have special classes for Woolwich and Sandhurst; the modern side in many schools is intended to apply to many careers besides the Army?—Yes, but they know the boys who are going into the Army, and they make it their sole aim that they should successfully pass the Examiner.

138. *The Chairman.* Then does it not amount to this, that you have coming into the Army a class who combine the advantages to be obtained from a crammer, with the chief advantages to be derived from the discipline of the schools?—Perhaps so; but I do not know that they get the whole of the advantages to be got from a crammer; crammers prepare better than the special classes in the public schools. I was talking lately to a boy in the 6th form of a large public school, where they have some very valuable mathematical scholarships, and I said to him, "I suppose your mathematical scholarships sometimes go to the boys going up for Woolwich and Sandhurst"? He said, "Never, or very rarely." I said, "Why?" and he replied, "They do not go far enough; they only go up to a certain point in Mathematics, and then stop."

139. *Mr. Roby.* Did that apply to the "Preliminary"?—No, to the "Further." Possibly the boys did not feel any inducement to go any further with a subject than was absolutely necessary.

140. Would that induce you to add to the mathematical subjects?—No, because the Professor of Mathematics at Woolwich has often told me that the candidates should be thoroughly well instructed up to the point at which they enter, rather than come in less perfectly grounded, with a smattering of what they will have to do later on.

141. Do you think the Army is not sufficiently attractive to well-qualified mathematicians?—I would

not say that, but if you make the standard too high you will keep out some good men, and you will narrow the field of selection.

142. I was rather thinking of putting the Higher Mathematics in the "Further" examination, so that persons having special attainments might perhaps get in?—That was thought over at the time, but it was decided to strike out Differential Calculus, because it was found to be learned only in a superficial manner, and it was thought better to let them work on Statics and Dynamics more thoroughly.

143. Does the Differential Calculus come into the Woolwich education at all?—Yes, for the Engineers.

144. The problems that an Artillery Officer would have to solve would not require Differential Calculus would they?—The Artillery require some of the very highest mathematical knowledge, but so long as you have a certain number of Officers who are able to deal with the high mathematical questions relating to Artillery that is quite sufficient. You do not require that every Officer should have that knowledge.

145. Then you have sufficient Mathematics in the Army to attract men with a mathematical genius?—It is not that so much as the work they do; the Corps of Engineers offers such advantages as to induce men of good attainments to come up for Woolwich.

146. I am thinking of putting the higher mathemathical subjects into the examinations, so that those who have them may get higher marks; at the same time of course the range of marks would have to be increased?—The natural objection to that is this, the more you extend the course, the more temptation there is for candidates to try and take up all the subjects, and therefore it was thought wiser rather to compress the course, so as not to get too much superficial knowledge.

147. *The Chairman.* Do you prefer to get boys into the Army straight from the public schools?—Yes, certainly; because the discipline they learn, and the training they get is very good.

148. Does that mean that you get the same sort of individual as you would get from the crammer only that he has had the advantage of the training and discipline of a public school, which he would not have if he were loafing about for a year or so at a crammer's?—Yes, because even the best of crammers cannot get such good discipline as exists in the public schools.

149. Speaking on behalf of a deputation of Head-Masters and others, who waited upon the Secretary of State some time ago,* Sir Henry Roscoe said, "The present state of things is regarded by many of the Head-Masters of schools as very unsatisfactory, because the system of marking at the Academy has the result of giving a very heavy bonus to those who enter in modern languages, and the effect of it all will be to make German a compulsory subject at the entrance examinations"?—I think that subject is dealt with to a certain extent in the Report of the Committee on Electricity,† over which I presided. What gave great force to the complaint of the public schools was no doubt the fact that German is one of the optional subjects at Woolwich, and that is the reason why, in the entrance examinations, it has so much preponderated over modern science. In our report, however, we have recommended the abolition of the "optional" Language at Woolwich in order to deprive it of the special inducement there was to study it in preference to Science.

150. *Mr. Roby.* Do you mean to take German out of Class II. altogether?—No, we only recommend the discontinuance of a voluntary Modern Language at Woolwich. Lord Morley's Committee, in 1885, recommended the abolition of all voluntary subjects at the Academy, but an exception was made in favour of a second modern language, and the result has been to make it almost obligatory in the entrance examination, because it counts so much in the Academy for those who want to get into the Engineers.

151. *Mr. Mowbray.* Are they allowed in the Academy now to go on with the study of one language only?—Not yet, but that is what we recommend in our report.

152. Would they still be allowed to take up two languages for the entrance, and afterwards to go on with only one?—Yes.

153. *The Chairman.* Would that entail a higher standard of Science in the Academy?—Indirectly it would, because it will make it worth while for a candidate to take up Science for the entrance examination, since Science counts for so much afterwards in the Academy.

154. *Mr. Roby.* Is it your impression that it is better for an Officer to have a knowledge of Science than to take up the other Language?—I think it is better now-a-days to encourage Science, especially the study of Electricity.

155. Do you regard a knowledge of Electricity as essential?—It is tending to become essential.

156. Are you willing to drop French or German for it?—Yes, because a man cannot take everything, and if we have no optional subjects we shall have a better chance of getting Science taken up.

157. *Mr. MacNeill.* Do you propose to increase the number of marks given for Chemistry and Electricity at the Royal Military Academy?—Yes, in order to encourage the study of those two subjects.

158. *Mr. Roby.* Do you have separate Professors for those two subjects?—No we have one Professor for both.

159. I should have thought it would have required a special man for Physics and a special man for Chemistry?—At present they are both under one man.

160. *The Chairman.* Are you of opinion that Latin ought to be an "obligatory" subject?—Yes, for the entrance examination. I have observed in public life that the men who have a good classical knowledge, especially a knowledge of Latin, have a great facility in expressing themselves both in speech and on paper, and with soldiers facility of expression is a very valuable thing, for the reports they have to make are very much affected by the absence of that power.

161. *Mr. MacNeill.* Then why do you give such a low number as 500 for the English essay?—I should be very glad to give more.

162. *Mr. Roby.* What is the meaning of the term "obligatory"?—Strictly speaking there are no "obligatory" subjects except Mathematics, in which a decimal has to be made.

163. Why is Latin classed as "obligatory"?—To induce people to study it.

164. *General Sir W. O. Lennox.* If it were put in Class II. it would be in much the same position as now, would it not?—Yes, if it were marked sufficiently high.

165. *Lieut.-General Sir R. Gipps.* No subject is really "obligatory" that has not a minimum number of marks attached to it?—That is so. The Civil Service Commissioners do not think it desirable to attach an absolute minimum to these other subjects, because many parents have an objection to Latin.

166. *Mr. Roby.* Do you think the public understand that it means in the case of Latin that you can pass if you get only 1 per cent of the marks?—It is misleading as it now stands no doubt, but you see paragraph 18 of the Regulations states the conditions fairly well when it says, "Every candidate must satisfy the Civil Service Commissioners in obligatory Mathematics, and must in addition obtain in the other subjects he takes up such an aggregate total of marks as may indicate in the judgment of the Commissioners a competent amount of general proficiency."

167. *Mr. MacNeill.* The Civil Service Commissioners were so amazed at the way in which these young gentlemen expressed themselves that they thought they should be taught Latin; from what you have already said that is practically what it comes to?—Yes.

168. And as things now stand Latin is made obligatory to the tune of 2,000 marks, and English which may, or may not, be taken up, gets only 500

* *See* Appendix III. † *See* Appendix IX.

marks in Class III. English History also is quite optional in Class II., so that it is quite possible for a young gentleman to go into the English Army without knowing one salient point of the history of his own country?—That is quite true, but the real difficulty in the matter is that there has been so much pressure brought to bear by the representatives of other branches of knowledge that English History has got pushed out of a leading position.

169. *Lord F. Hervey.* But as a matter of fact that subject is very well patronized, is it not?—I cannot say.

170. *Mr. MacNeill.* You say that the authorities prefer to have public schoolboys, on account of their training and discipline, but is there not enough training and discipline taught during the two years at Woolwich or Sandhurst to lick them into shape?—I think it is very undesirable that there should be any break in the training, and it should continue from youth up, and I think that even those who are most in favour of private tutors will hardly dispute the statement that the moral discipline of public schoolboys is better than that of boys under private tutors.

171. From what I know of study for scholarships, I should say that boys of 18 would have such a mere smattering of Latin as to be of very little benefit to them in after life, and yet you make Latin an "obligatory" subject in this examination?—If a boy has gone through the classical side of a public school up to the age of 18, he ought to have a fair knowledge of Latin, and from my own acquaintance with public schoolboys, I think I am justified in that opinion.

172. *Mr. Mowbray.* Is the value which you attach to a classical education based on the actual amount of education acquired, or on the process of acquiring it?—On the process of acquiring it, and I have come to the conclusion that one of the most valuable trainings for the mind is the trying to find out the meaning of classical authors. I think that is rather lost sight of in the present day, people are always looking to immediate results and lose sight of the value of training.

173. *The Chairman.* Do you think that a means of increasing the scientific knowledge at Woolwich would be found in making Science an "obligatory" subject?—That question was considered by the Committee on Electricity, and in paragraph 19 we say, "As it has been held to be undesirable to encourage the taking up of too many subjects, the addition of another subject to Class I. cannot be recommended and would, moreover, entail the reduction of one of the voluntary subjects in Class II., which would narrow the choice of subjects in a way that would be detrimental to general education." What was running through the mind of the Committee when we were considering that paragraph was that it had been more or less laid down as a rule that of the big subjects in Classes I. and II., not more than five were to be taken up; we thought if we added to those subjects we should not get thoroughness, and that is a conclusion to which the Civil Service Commissioners also have come after 30 years' experience.

174. *Mr. Roby.* Have you ever thought over the question of allowing candidates to take up any number of subjects in Class II., and preventing a mere superficial knowledge counting, by giving only the marks in excess of one-third of the number required?—That rule was followed for many years in dealing with the Woolwich examinations, but as it was not considered a success it was deliberately abandoned.

175. When was that?—About 1885, I think.

176. *The Chairman.* Was that a result of Lord Morley's Committee?—Yes, I think so.

177. *Lord F. Hervey.* Was there an unlimited choice in 1870?—I cannot say, but afterwards the numbers were limited to four, besides drawing.

178. They were afterwards increased to five?—Yes, and they were divided into classes, by putting three into the first class as "obligatory," and then any other two.

179. *Mr. Roby.* Do you agree that these are good obligatory subjects for the Army, Elementary Mathematics, English, French or German, Geography and Geometrical Drawing?—They certainly are good subjects.

180. Would you add anything to them?—Yes, I think some knowledge of English History. I do attach very great importance to a soldier knowing his national history; I do not think a man can be called a well-educated man without a knowledge of English History.

181. As I understand, you do not want to put Chemistry or Science among the absolutely necessary subjects?—I think we must make a distinction; the subjects you have mentioned belong to the primary subjects of a general education.

182. Are we to understand that an "obligatory" subject is one in which a minimum is required from every person?—I am not prepared to require a minimum except in the Further Mathematics, though perhaps some of the subjects, a knowledge of which should be a *sine qua non*, ought to have a minimum. Take Geography, for instance, great mistakes are said to have been made in that subject by public men.

183. *Mr. MacNeill.* Would there be any objection to taking away all the limitations and letting the boys go in for what subjects they pleased, leaving it to the examiners to give no marks at all where a competent knowledge had not been shown, but at the same time not making that competent knowledge depend upon obtaining a certain number of marks?—I have not had any experience as an examiner, but I think the principle of not letting an evidently superficial paper count as a good one is a good thing. I am doubtful about allowing any number of subjects to be taken up, because then there would be a tendency to cram, and there is no training for the faculties in mere cram. I should like to quote a paragraph from my report, published in 1889: "This may be illustrated by the evidence given before Lord Morley's Committee by a young Officer of Royal Engineers, who stated that he only knew French when he entered the Royal Military Academy, but that, whilst there, he learned German, Spanish and Italian. For these he got about half marks, and forgot them all immediately afterwards. He had a facility for acquiring a language superficially, and found he could get far more marks in that way than if he had continued the study of mathematics. As an Officer the only language he could speak was French."

184. *Mr. Roby.* Have you had any opportunities for noticing the careers of Officers afterwards; that is, in comparison with their education?—When I was Director-General of Military Education I was very anxious to follow the career of Officers in reference to their previous histories, but there were not sufficient records available. It is an important point, but it could be followed up only under a very elaborate system. I have not the least doubt that in the long run, the better trained men will come to the front, though of course there are exceptions even to that rule. The Officers in charge of garrison instruction classes have informed me that they have had the greatest difficulty in making some of the Officers who have come to them understand the subject which they were going to teach them; they could not be got to understand the groundwork of the teaching. I ought, however, to add that those Officers had not passed through Woolwich or Sandhurst.

185. I am trying to get at what will give a better training; does it not depend upon the use of means, and not so much upon the subjects taught?—No doubt; and some masters can teach better than others, but still some subjects have always been considered useful for purposes of training the mind.

186. *Lord F. Hervey.* The complaints addressed to you did not apply to Officers coming into the Army through Woolwich or Sandhurst?—No, a great number of Officers come into the Army through the Militia, and a great many of them are men who failed to get into the military colleges.

187. *Mr. Hunter.* For the purposes of the Army there are a certain number of "utility" subjects which you have to keep in view, as necessary for a basis for the military training of Officers, but except in regard to those subjects, and in regard to the question of general ability or training, is there any difference between the two tests which you apply to an Officer for the Army and to a candidate for the Civil, Naval, Colonial and Indian services?—None, so far as the military colleges are concerned, because I conceive the object of those colleges is to obtain well-trained and well-educated men, and then give them a special training afterwards; and it is desirable that it should not be otherwise, because if you make your entrance examinations too professional the result would be that the boys who did not pass would be handicapped for the other professions, and then you would reduce the number of your candidates.

188. Would it not be desirable, once we had eliminated the special military elements, that in dealing with the general question there should be one uniform principle for all services on entering?—You could not treat the Naval service in the same way, because there they enter very young. As regards the other services there are only some slight differences (for instance, in the Home Civil Service you would not want a man to know Geometrical Drawing), but I think the general rule of obligatory subjects should be the same for everybody.

189. *Mr. Mowbray.* What do you consider "utility" subjects as regards the ordinary Army Officer?—Those which are now taught at Sandhurst, "Fortifications, &c."

190. I mean, what are the general subjects?—Mathematics, to a certain extent, must of course be one, and I think Latin is also a valuable means for that training of the men which is required in every profession in which you want to start a man off with a good intellectual training. I think also Geometrical Drawing may be considered a "utility" subject so far as the Army is concerned.

191. *The Chairman.* General Grant said this to the deputation to which I have already referred, "Another subject I should like to call attention to is what I may term Descriptive Geometry. I have never known an Officer who was good in that subject who did not turn out a good Officer, but I have known many good mathematicians who did not turn out good Officers." What is "Descriptive Geometry"?—It is partly the solution of problems by geometrical methods, and also the science of dealing with solid bodies with intersections by planes.

192. Do you think the Inspector-General of Fortifications thinks this "Descriptive Geometry" ought to form part of the ordinary Woolwich Course?—Yes, it is a very important subject for Engineer Officers, but it is too far advanced and too special for the entrance examinations. The Geometrical Drawing in the entrance examinations is quite the A, B, C of the subject, and cannot injure anyone.

193. Have you any suggestions to make with regard to the examinations for the Royal Military College at Sandhurst?—No, I think the system should be judged by its results; the young men who are coming in now are very excellent young fellows, very well behaved, and well educated.

194. Do you wish to see Science take a part in the entrance examinations?—Only to the same extent as now.

195. *Mr. Roby.* Do you lay any stress upon the power to make a good report, and on the power to make a good précis of a mass of correspondence?—I do attach importance to those subjects, but I do not know that it is necessary to add them to the subjects of the entrance examinations.

196. Do they ever practice those subjects at Woolwich and Sandhurst?—Not specially.

197. *Lord F. Hervey.* It has been suggested that it would be a good thing to divide Physics into two parts, putting Electricity and Magnetism on one side, and Heat, Light, and Sound on the other side, at the same time raising proportionately the marks for both, do you agree with that suggestion?—I am afraid I am not sufficiently expert in these matters to say whether that would be a good thing.

198. Would you go so far as to reject absolutely a candidate who might fail in obtaining some prescribed minimum in English History, when he might be exceptionally brilliant in the Higher Mathematics?—I think not, and that is one of the reasons why I objected to doing away with the preliminary examination; I think many of the subjects in the "preliminary" might be struck out as being "obligatory" in the "further," but you want the A, B, C of an English boy's education too.

199. In the Indian Service examinations there is no "preliminary," does not that go some way towards overcoming your scruples?—Possibly, but if I find an English civilian who knows nothing of English History, I do not consider he is a well-educated man.

200. *The Chairman.* I see you say in your report on Electricity, "It might be thought that the fact that Chemistry and Physics are amongst the subjects included in the course at the Royal Military Academy would be an inducement to give them a preference amongst the optional subjects at the entrance examinations, but this is not the case, nor can it be expected that it should be so, when it is considered that the marks gained in a voluntary subject are a clear gain over and above the marks obtained in the regular course. A cadet who had previously studied Chemistry or Physics could not expect to gain thereby more than 100 or 300 marks above others who had not so studied it, but by a voluntary language he can safely reckon on at least 500 or 600 marks." Do I understand that by the means you recommend in another part of the same report you think that case can be met?—Yes, I think so, because, except for the purpose of getting the 2,000 marks in the examination, there would be no special inducement to take up the second language; on the contrary, there would be every inducement for a man to take up Physics instead, because they would count to the good afterwards.

201. Then so far as you can see, your plan ought to meet the demand for an increased scientific education?—I should try it in the first instance.

(*The Witness withdrew.*)

FRIDAY, 11TH AUGUST, 1893.

Present:

LORD SANDHURST, *Chairman.*

Members:

Lord FRANCIS HERVEY.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Sir H. E. ROSCOE, M.P., F.R.S.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. R. G. C. MOWBRAY, M.P.
Mr. H. J. ROBY, M.P.

Mr. R. H. BRADE, *Secretary.*

Mr. W. J. COURTHOPE, *examined.*

(*See* also Appendix X.)

202. *The Chairman.* You are a Civil Service Commissioner, I believe?—Yes.

203. For how long have you held that appointment?—Since 1887.

204. Will you, in the first place, say what you consider a "public school" to be?—It is very difficult to do that accurately, but I should say off hand that it is a school in which the best secondary education of the country is given, that is distinguishing "secondary" from "elementary" education. It is, however, difficult to draw a line between the various grades of secondary schools, and, in fact, we find in the Army examinations that candidates come to us from all kinds of schools, in which a liberal education is given.

205. Will you tell us what the competitive examinations are, and how they are met by the present system of examination for the Army?—Originally the War Office appointed its own examiners; then upon the recommendation of the Royal Commission of 1869–70, the examinations were handed over to the Civil Service Commissioners, and in 1875 (I think) we were appointed by an Order in Council to hold these examinations under regulations framed by the War Office. We therefore act simply as ministers for the War Office in respect to Army examinations.

206. Do you try in these examinations to secure getting boys with a good educational ground-work?—That is the object which we understand the War Office wishes us to pursue. We understand that the candidates are, in the first place, to have a good general education before they take up their professional education.

207. Do you think that the present system meets the requirements?—I think it does as nearly as possible. I should be very sorry to see any fundamental changes made in the existing method of examination. I should, however, like to see the subject of Physics split up into two parts, as I think it is too large as it is. Beyond that I do not wish to see any change.

208. Have you seen the report of the Committee on Instruction in Electricity at the Royal Military Academy?—No, it has not yet come before us.

209. Are you aware that a deputation of Head Masters, and others, waited upon the Secretary of State some time ago, for the purpose of drawing his attention to the present position of scientific subjects in these examinations?—No. I had not heard of it.

210. In the course of that interview Sir Henry Roscoe said, "The present state of things is regarded by many of the Head Masters of schools as very unsatisfactory, because the system of marking at the Academy has the result of giving a very heavy bonus to those whose who enter in modern languages, and the effect of it all will be to make German a compulsory subject at the entrance examinations"?—That refers practically to the subsequent course of study in the Royal Military Academy, and I do not know what the system of marking is at Woolwich. We deal only with the entrance examinations, and I do not quite see how those examinations would tell upon the Woolwich system one way or the other.

211. It practically restricts the choice of subjects by the candidate at the entrance examination?—That might be so. The course of education prescribed at Woolwich might affect prejudicially the education of the candidates before they arrive there; but our examinations would not affect either the schools or Woolwich prejudicially.

212. *Sir H. Roscoe.* If in your examinations you do not give enough marks in Science to enable a candidate to get into Woolwich, then he is affected?—Yes, but on the other hand we put Science, in respect of marks, upon the same footing as the other subjects in Class II.

213. *Mr. MacNeill.* Can a candidate get into Woolwich without a competent knowledge of Science?—Yes, in the special sense of the word, but not without a knowledge of Mathematics.

214. We have heard that a young man came up for Latin, and got 12 marks out of the 2,000, and he was allowed to pass in that subject because of his distinction in other subjects, do you think under those circumstances Latin can properly be called an "obligatory" subject?—Yes, in one sense.

215. How?—It is obligatory in this sense, that, if a candidate takes all the five subjects allowed him by the regulations, Latin must be one of them.

216. Is there any difference, so far as the maximum of 2,000 marks is concerned, between the boy who gets 12 marks for Latin and the boy who gets none?—None, beyond the 12 marks.

217. Then it is not "obligatory"?—No, not in that sense. There is no obligatory minimum in Latin.

218. In Class II., 2,000 marks are given to each of the various scientific subjects and for Mathematics, but there is a prohibition to the effect that not more than two subjects shall be taken up in that class?—Yes.

219. Therefore, it is possible for a boy with a good knowledge of the work done in the school laboratory to pass the examination without knowing one salient fact with regard to the history of his own country?—Yes; he need not take up English History.

220. In Class III., English gets only 500 marks?—I may say that we are now proposing to the War

Office, and I have very little doubt we shall receive a favourable reply, that English composition shall be moved from Class III. and put into Class I., and get 1,000 marks.

221. English ranks for marks equally with Free-hand Drawing, do you think that is right?—We have already proposed to change it.

222. Yes, but I understand that is because you are going to do away with the "preliminary" examination?—Yes.

223. I understand also that the Civil Service Commissioners made representations to the War Office that the education in English of the young men coming into the Army was mainly founded upon the comic and sporting papers of the day?—I do not think that we made representations to that effect; but perhaps the literature of the inferior candidates does not go much beyond the comic and sporting papers.

224. And I understand that to induce young men to cultivate literary taste in English, Latin was made a compulsory subject?—By no means. We did not make any change in saying that Latin should be made an obligatory subject, for Latin was already included in Class I.; we said it should be "obligatory," because it was taught to all boys in all the public schools.

225. Does the War Office wish to draw its recruits from the public schools?—Yes, that is the principle upon which the whole system of the examination has been framed.

226. Then does it not come to this, that the Service, which should be open to the whole community, is more or less a preserve for the public schools?—I think that "preserve," in the invidious sense of the word, is scarcely the word to be applied to the matter at all; at present, we draw recruits for the Army from almost all the schools in England where Latin is taught.

227. Has not an increased value been placed upon Latin during the last few years?—No, not in the least.

228. *General Sir W. Lennox.* Why was Latin put into the "preliminary"?—Because it was in the "further," and we did not want a young man who knew absolutely nothing about Latin to compete in the "further."

229. *Mr. MacNeill.* It was put into the "preliminary," not by the pressure, but on the representations, of the Head Masters of what we call the public schools?—Not so. It was put into the "preliminary" because it was already in Class I.

230. *Mr. Mowbray.* Did that proceed from the action of the Head Masters?—No, not in the least; the change was made on the strength of a memorandum sent to the War Office by the Civil Service Commissioners. You will see the correspondence about the subject in the Report of the Civil Service Commissioners, dated 1889; the Head Masters were consulted after the scheme had been approved by the War Office.

231. *Mr. Roby.* Were they consulted with a view to alteration, if necessary?—Very possibly; but they were consulted by the War Office, not by the Civil Service Commissioners.

232. *The Chairman.* I understand that the object of securing boys, if possible, from the public schools is that you get boys with a better moral training and tone?—Yes, that was the view of the Royal Commission, and it is the only point to be considered as between the schools and the crammers.

233. *Sir H. Roscoe.* Can you distinguish between boys coming from the schools and from the crammers?—No.

234. Then what reason is there for saying that the boys coming from the crammers are not so desirable for the position of Officers in the Army as boys coming from the public schools?—That opinion is based upon the evidence given before the Royal Commission in 1869-70, in which the witnesses expressed themselves unanimously upon the subject

235. *The Chairman.* I understand you do not object to the individual as such; but a candidate coming direct from a school is fresh from good moral discipline; whereas, under a crammer he would have perhaps two or three "loose" years, if I may so call them?—Yes, that is precisely the point.

236. *Mr. MacNeill.* I have just looked over the examination papers, and I see the Latin is confined to what we call construction, but a knowledge of construction only does not give a knowledge of Roman history and Roman literature?—There is an alternative paper to the verse composition paper, and that contains questions on Roman history and literature.

237. *The Chairman.* Will you state more fully what alterations you propose in the case of Physics?—That is a subject upon which I should desire to speak with extreme modesty, because I am not familiar with it; but from what I hear from experts, I imagine it could be broken up into two parts, one containing Electricity and Magnetism, and the other Heat, Light, and Sound. The subject, as it at present stands, is, I understand, a very extensive one, and experts think it is too much for boys to grapple with.

238. How would that operate on the present syllabus?—We should divide the subject, Physics, into sections "a" and "b."

239. Would there be any difficulty in putting it all into Class I.?—Yes, under the the present system of examination, because it would compel all the boys to take up Science, whether they have scientific tastes or not.

240. If the recommendation of the Committee on instruction in Electricity at Woolwich preventing them taking up a voluntary language at the Academy is adopted will it force them into Science?—Yes; if it is intended to make Science obligatory in the Woolwich course they would be more likely to take it up as an optional subject while at school; that is to say, they would take one scientific subject and couple it with a subject for which they have a natural turn, in order to prepare themselves for the Woolwich course.

241. Would you far sooner proceed by the natural means?—Yes, I should wish to preserve the existing system, which allows each boy to choose his two optional subjects according to his own taste.

242. *General Sir W. Lennox.* When you have divided Physics into two parts will you allow the boys to take both?—I should divide them into "a" and "b," but I would allow candidates to take only one. I should give 2,000 marks to each division.

243. *Sir H. Roscoe.* Is it possible for a boy to pass the entrance examination without any Science at all?—Yes, it is possible; I have here some figures which show the various combinations which have taken place in some recent examinations with reference to the choice of subjects made under Class II. I also distinguish between those candidates who came direct from the public schools, and from those who came from the crammers.

Woolwich, November, 1892.

Higher Mathematics + one scientific subject.

13 { Schools, 10 / Special preparation, 3

Chemistry was taken by 12 out of the 13.

Higher Mathematics + English History.

3 { Schools, 1 / Special preparation, 2

Greek + one scientific subject.

2 { Schools, 2 / Special preparation, 0

Greek + one Modern Language.

2 { Schools, 1 / Special preparation, 1

English History + one Modern Language.

5 { Schools, 1
Special preparation, 4

English History + one scientific subject.

2 { Schools, 2
Special preparation, 0

Higher Mathematics + one Modern Language.

15 { Schools, 13
Special preparation, 2

German was taken by 14 out of 15.

Modern Language + one scientific subject.

5 { Schools, 4
Special preparation, 1

Two scientific subjects.

3 { Schools, 1
Special preparation, 2

So that you see out of 50 candidates 35 came direct from the schools and 15 after special preparation, 25 of those candidates took a scientific subject, Chemistry, as one of their subjects.

244. Do you think that is satisfactory so far as Science is concerned? — Yes; according to the principle upon which the examination is based. I cannot go beyond that, because I have no precise knowledge of the requirements of Woolwich.

245. You know that Woolwich is for the scientific branches of the Army?—Yes; and you see that Higher Mathematics were taken up by a very large number of the candidates.

246. At the same time it is a striking fact, is it not, that one-half of the men going up to Woolwich do not show the slightest knowledge of physical science, although their subsequent career is one in which the various parts of physical science must play an important part?—It also shows that you get a large number of very various intellects into the Army.

247. Would you prefer to look at it from a general point of view and admit boys of various casts of mind provided they got afterwards, in the Woolwich system of tuition, such instruction in those special subjects as they needed?—I should infinitely prefer that plan, and on general principles, because, if we specialize the subjects of examination for the Woolwich candidates, we to that extent dislocate the general system of education in the country, which, from our point of view, is the last thing we wish to do. I think that a boy of ability educated in the general curriculum of a public school acquires an amount of mental flexibility which enables him readily to turn to other subjects in after life.

248. *Mr. Roby.* Would you say Science, or Higher Mathematics, would naturally be combined by a boy with a knowledge of Greek?—Such combinations are occasionally made. Every candidate must take Mathematics.

249. But how much Mathematics? As I understand it you have no high minimum required in that subject?—Yes, there is an obligatory minimum for Woolwich.

250. What is it?—That is a point for the Commissioners to determine; we do not publish details. We have an eliminating process in Mathematics which would leave in, say, 100 out of 240.

251. *Mr. MacNeill.* Would you pluck a man who has only half knowledge?—Yes.

252. *Lord F. Hervey.* Here is a case of a candidate who scored 1,749 out of 3,000 marks for "obligatory" Mathematics and yet he was not passed?—That is so: he failed in one of the subjects included in "obligatory" Mathematics. Here are some figures, similar to those I have already given you, for Woolwich, June, 1893.

Higher Mathematics + one scientific subject.

11 { Schools, 4
Special preparation, 7

Chemistry was taken by 8 out of the 11.

Higher Mathematics + English History.

1 { Schools, 1
Special preparation, 0

Greek + one scientific subject.

1 { Schools, 0
Special preparation, 1

Greek + Higher Mathematics.

5 { Schools, 4
Special preparation, 1

Greek + one Modern Language.

1 { Schools, 0
Special preparation, 1

Greek + English History.

2 { Schools, 1
Special preparation, 1

English History + one Modern Language.

4 { Schools, 2
Special preparation, 2

English History + one scientific subject.

2 { Schools, 1
Special preparation, 1

Higher Mathematics + one Modern Language.

13 { Schools, 10
Special preparation, 3

German was taken by 12 out of the 13.

One Modern Language + one scientific subject.

7 { Schools, 4
Special preparation, 3

Two scientific subjects.

3 { Schools, 3
Special preparation, 0

So that out of 50 candidates 30 came from the schools and 20 after special preparation; but of these latter 8 had been undergoing special preparation only for 6 months, or less, and therefore perhaps they should be counted to the schools.

253. *Mr. Mowbray.* The tendency of all these figures is to show that in Science the schools do better than the crammers?—Yes, on the whole, I think they do, because in the Woolwich examinations the abler boys come direct from the schools. We have no means of measuring accurately these facts prior to the last two examinations, because before that we had not the educational histories of the candidates, but in the old days the schools had nothing like such a proportion of successful candidates; the crammers' candidates succeeded against the schools almost in the proportion of three to one. The schools began to discuss the establishment of Army classes in 1871.

254. *Mr. Roby.* Do you attribute this comparative success of the schools over the crammers to the adoption by the schools of a special training, or to alterations in your examinations?—Chiefly to alterations in our examinations.

255. Can you specify any particular changes?—Under the first system of examination there was no classification of subjects at all; the subjects recommended for the scheme of examination by the Royal Commission were those included in the public schools' curriculum, and to each of those subjects a certain number of marks was assigned. From that scheme the candidates were allowed to choose any five subjects; but the subjects were marked without reference to their proportional value in the curriculum of the

public schools, and of course candidates chose all the most highly marked subjects. English, for example, that is to say, composition, literature, and history, did not come within the list of educational subjects regularly taught in the public schools, but as 3,000 marks were given for it everyone chose it; it was a subject easily crammed, and, therefore, the great bulk of the students went over to the crammers, who could deal with any combination of subjects they chose. The subjects were marked 3,000 for English, 3,000 for Latin, 2,000 each for French and German, 3,000 for Mathematics, 2,000 for Greek, and 2,000 each for the scientific subjects. The five subjects which candidates might take were afterwards reduced to four, and the result was that the candidates chose English, Mathematics, Latin, and one other subject, but they all took English. Many more candidates then came to us from the crammers than from the schools; and I suppose it was on that account that the military authorities (though we have no evidence showing what their reason was), thought that the examinations were not answering. Accordingly they adopted the system which was in force up to 1891, namely, a classifying system, something like the one now in force, but with one very great difference; there were then, as now, four subjects included in Class I., Latin, Mathematics, and two Modern Languages, but they were all marked at 3,000, while the optional subjects in Class II. were marked 2,000. As the candidates were allowed to take only four subjects, the stress of competition forced them, as a rule, to take only the subjects in Class I. Then the scientific interest took up the case, and questions were asked about it in Parliament; we also received countless complaints about the matter at the Commission. I made some representations to the War Office as to the changes which I thought would remedy the inequalities complained of, and, as a result, a conference was held, and the present system arranged. Under the previous systems the crammers carried everything before them, but under the present system all that has been altered.

256. "Carried everything before them," would you say that the boys were of a different character and calibre from those you get now; they were probably to a large extent public school boys who had left school for one or two years, were they not?—They cut short their school career in order to go to the crammers.

257. And you say that was largely due to the fact that high marks were given to subjects which were not well taught in the schools?—They may have been well taught or not, but the schools could not easily combine those subjects with their fixed curriculum. We call the subjects in Class I., in a certain sense, "obligatory," because they represent subjects which are universally taught in the public schools, and, therefore, they are "obligatory" in the education of the country.

258. Have they any minimum in your examination?—No, because, having hitherto had a preliminary examination, we have relied upon the stress of the competition.

259. You are not going, in future, to call any subjects "obligatory" are you?—In future it would be well to call them Class I. subjects.

260. And will you still have Classes I., II. and III.?—Yes, I do not want to see any different classification.

261. *Mr. Mowbray.* You say men were driven into taking Class I. subjects, because, although they had the option of choosing from other classes, yet Class I. was marked higher?—Yes, they were apparently allowed to choose, but their actual option was limited.

262. Therefore, when you diminished the value of Class I. subjects, you did a great deal towards raising the optional value of Class II.?—Yes, and we reduced the number of subjects in Class I. and increased the number in Class II. Candidates may now take five subjects, but three of them must be from Class I.

263. *Mr. MacNeill.* Would there be any objection to putting English into Class I.?—You must limit the number of subjects a boy may take up, and if you do that, you must have regard, from our point of view, to the established school curriculum. But we propose to put English composition into Class I.

264. *The Chairman.* You say that the change from the crammers to the schools has come about owing to the alteration made in your system of examinations, might not that have been owing to your reducing the standard of your examinations?—That is not the case, because the standard of attainment as shown by the results, has actually risen.

265. *Sir H. Roscoe.* Has it raised and improved the teaching of the schools?—Yes, I think you may see that the standard is rising by comparing the total number of marks obtained by the 100th candidate for Sandhurst and the 50th candidate for Woolwich at each of the following examinations, the *maxima* being the same for the whole period:—

	Sandhurst, 100th Candidate.	Woolwich, 50th Candidate.
June, 1891	6,081	6,197
November, 1891	6,394	6,279
June, 1892	6,778	6,520
November, 1892	6,756	7,310
June, 1893	6,230	7,225

The fall in the case of the last Sandhurst examination is, perhaps, to be accounted for, in part, by the reduction in the age of the candidates, but it is also due to the fact that new examiners have had to be imported, in order to get out the result more quickly, and some of these have adopted rather too high a standard.

266. *Mr. Roby.* But otherwise were the examiners always the same?—Not necessarily; but we always revise the marks of the examiners at the Civil Service Commission, and, as far as possible, retain the same standard, because it would be very unfortunate to have an altering standard.

267. Are those the totals of marks obtained in each case, or have some deductions been made?—No deductions have been made.

268. Have you ever adopted a plan of deducting a certain number of marks, say one-third, in order to guard against a superficial knowledge?—We do that in the Indian Civil Service examinations where a candidate may choose as many subjects as he likes.

269. Do you agree with that?—Yes, we think it works very well.

270. Would you not apply the same to the Army?—I do not think it applies to the Army examinations where the candidates are allowed to take only a limited number of subjects.

271. But suppose the limit were abolished and the candidates were allowed to choose?—Then we should have to do it.

272. But would you agree to it?—I should be very sorry to see the present plan departed from.

273. I mean as a method of examination?—When once you begin to limit a candidate's choice I doubt whether such a plan would succeed.

274. *Sir H. Roscoe.* Which do you prefer theoretically; is there any reason why it should answer in one case and not in the other?—The reason why a difference is made in the case of the Indian examinations is on account of the difference in the age, which is from 21 to 23. On the average a man gets his degree at the University by the time he is 23 The maximum age for Woolwich is 18 and for Sandhurst 19, and the average age for passing into Sandhurst is about 18½.

275. *Mr. Roby.* Would a University man take more subjects than the others?—Yes, certainly. The Oxford course is a very wide one, and a man who has been reading for "Literæ Humaniores," can almost take the Indian Civil Service examination in his stride, so to speak. In that respect the ordinary honour course at Oxford is at present a wider course than at Cambridge, because Moderations and Literæ Humaniores embrace Latin and Greek scholarship, Mental and Moral Philosophy, Political Economy, Political Science, Greek and Roman History.

276. Does a person necessarily take up all those?—Yes, most of them if he gets honours in "Greats."

277. That practically is taking the Cambridge course, and adding to it the moral sciences?—Yes, and Ancient History.

278. *Sir H. Roscoe.* Then there is a distinct difference between the two classes of candidates who come up for these different examinations?—Yes.

279. *Lord F. Hervey.* The Indian Service examinations and the Class I. Home Civil Service examinations are examinations suitable for graduates from the Universities, are they not?—Yes.

280. *Mr. Roby.* Are the examiners themselves satisfied with the results they at present get in Physics?—You may take it that it is not at present a paying subject; it is too large, I think; almost everyone takes Chemistry in preference to Physics.

281. Does your examination include a practical one?—Yes.

282. Are the results fairly satisfactory?—Yes, I think so, considering that the candidates are only boys.

283. They appear to require a kind of apology?—Yes, perhaps so. We have lately had a letter from one of our most experienced examiners upon this subject, and he says the candidates appear to get up their Chemistry from books.

284. *Sir H. Roscoe.* Does that also refer to practical Chemistry?—I think so. The examiner says: "In the practical examination the candidates seemed to work only by rule. They did not seem to have learnt the Chemistry of the tests they applied, and if the solution of the problem was not attainable directly by their rules, they failed to put their observations together so as to reach it. They had no reliance on themselves for anything, however simple."

285. *Mr. Roby.* With regard to English, which is a very vague term, it appears at one time to have included History and Literature?—Yes.

286. English now appears to be limited to the power to write an essay or letter. I presume such subjects are chosen as will interest the lads?—Yes.

287. I find there is nothing in the way of making a précis, or report on, or digest of, correspondence in the examination for Woolwich, have you anything of that kind in any of your examinations?—Yes.

288. Have you found it work satisfactorily as an examination subject?—I do not think we have applied it in the more purely literary examinations, and the Report, at least, has been used more for technical purposes, as for instance, in the police examinations.

289. Do not you think it a thing which requires practice in order to be well done?—If we prescribed such a subject we very likely should give a lead to the schools, and they might adjust themselves to it. But such a change would introduce a somewhat special element into the examination.

290. You have adjusted your examinations to the schools?—Yes.

291. But you have at times exerted a certain amount of pressure upon them?—Yes, where we could do it without disturbing their course.

292. And would you still be disposed to exert that upon them if you thought it would be to the interests of the Army?—Yes.

293. Do not you think a knowledge of digesting reports, &c., would be valuable in itself, and difficult to cram?—I should think it might be combined with a system of general liberal education; it would be possible. But I should wish to speak with reserve on this point. It could be put into the English composition class.

294. That is why I suggested giving additional marks?—We propose, with the approval of the War Office, to give English composition 1,000 marks, and put it into Class I.

295. Taking English people generally, I suppose some power of English composition is a very valuable thing?—I set a very high value upon it, both as a test subject and as an educational subject.

296. Why should you not give as high marks to this subject as, say, to Latin, which a candidate may not use again?—Because, in practice, it requires very much less trouble on the part of the candidates, and we should find, very probably, that the candidates would not go up to a high standard in it.

297. Could not you gradually bring up the standard in those things?—I rather doubt that.

298. All the Latin they use at school would still come in, because, as we hear, Latin is the best means of teaching English composition?—I think there is a misapprehension on this point. The Civil Service Commissioners have never recommended Latin as a subject immediately connected with the teaching of English composition. I think Latin a most valuable instrument for the training of the logical faculty, and it is also of the greatest use in giving an etymological knowledge of English. But the sole ground on which the Commissioners recommended its inclusion in Class I. was the predominant place it holds in the secondary education of the country.

299. But the Latin at school would not be wasted on this subject?—Certainly not, but I think 1,000 marks is enough for it.

300. Even if you added some practical test, such as dealing with masses of documents?—Yes, I think so as at present advised. If digesting were added as a specific subject, we should be introducing a subject which at present does not form part of the ordinary school curriculum.

301. After what has already been said are you opposed to an absolute minimum in these examinations, that is counting only the excess over a certain number of marks, and letting the election of a candidate depend entirely upon real excellence in each and all subjects?—I should not like to give you an answer until I know what the result would have been if there had been a deduction.

302. Say a deduction of not less than one-fourth or more than one-half?—I think we take only one-fifth, I will see how the method of deduction would work.

303. I notice in one of the sets of figures you have given us the modern languages appear to have been done better by the crammers than by the schools?—I think the schools are making way in the matter of modern languages.

304. Does that include any Colloquial?—The effect of the high marking for the Colloquial was very disastrous. The boys used to go abroad to get a smattering of French, or German, from a foreign crammer, and then come to get their 400 marks for 10 minutes' examination.

305. I presume you cannot give sufficient time to the subject?—That is it; we cannot get the examiners and the candidates into real touch with one another in the time.

306. But could you not adopt some method which would distinctly induce the boys to go abroad for four or five months in order to get some knowledge of French or German, say during the vacations?—I should object to that, I think it would be better for them to have their holidays.

307. Would you like them to spend abroad the last six months before the examination?—No; I doubt whether they would get any educational good out of it.

308. But looking to the necessity of French and German for Army Officers, do you not think a knowledge of the colloquial is most important?—I think

they soon pick up what is colloquial when they have mastered the structure of the language.

309. *General Sir W. Lennox.* In the examination of Officers afterwards Colloquial has a place, has it not?—Yes, it is required in the examination of the Army Officers.

310. *Mr. Roby.* Do you find that English History is a good examination subject?—Not very good, because there is a tendency to cram in it. The number of questions that can be set is limited, and the substance of these is always being repeated under various forms; indeed it is very difficult to find a sufficient variation. This enables teachers to cram it beforehand.

311. *General Sir W. Lennox.* Could not the schools also cram it?—Almost all teachers probably "cram" it to some extent.

312. *Mr. Roby.* Do you adopt Euclid throughout, or do you use the more modern geometrical books?—I think Euclid is adopted entirely, though I believe the question of the option has been raised.

313. Would your examiners be willing to accept solutions of mathematical problems not in precisely the Euclid form?—Yes, I think they do that, so long as the logical order of Euclid is adhered to.

314. Can you say what the word "work" means in the section under Dynamics in Class II.?—No, but I will find out.

315. Do you find Physical Geography and Geology good subjects for examination?—Very few take them up, but I find that from the very first they have been subjects for the Army examinations.

316. But regarded merely as tests are they subjects that can be dealt with so as to exclude the worst features of cramming?—I think they can be taught and examined upon as good subjects of general education, and one or two teachers have written to express their high approval of the subjects.

317. *Sir H. Roscoe.* Is it essential in the Chemistry examination that a portion should be of a practical character?—I think so, because as I understand it, there is a tendency to get up the subject from books. Our intention is, as far as possible, to reduce the tendency to cramming.

318. How do you divide the subject?—The examination is divided into a practical part and a theoretical part.

319. *Mr. Roby.* Is the result in Latin fairly good?—Yes, I think it is satisfactory; it is a very good test subject for separating candidates.

320. Those who are weak in Latin, are they strong in Mathematics or some one of the other special subjects?—I have not observed anything special in regard to that.

321. With reference to Woolwich, have you analysed at all what are the subjects which contribute most to the success of the candidates?—I can get you details.

322. *Mr. MacNeill.* All these marks are of enormous importance to the candidate, and speaking from my own experience as an examiner, would it not be better, if it could be managed, that at least two examiners should confer between themselves in reference to each examination paper, so much depends upon the tone of the examiner's mind?—That would very largely increase the expense of the examination, and further it would greatly delay the result.

323. But you know one man will give 150 marks where another will give 250 marks?—Yes, no doubt the more thorough an examination can be the better.

324. With a constant change of examiners there is a great deal of what is called "luck" in these matters, is there not?—You cannot of course have mathematical certainty; but on the whole I think justice is done. The War Office authorities press us to get out the results as soon as possible.

325. *The Chairman.* Is it not of great importance to keep uniformity in these matters?—Yes, and for that purpose our own examiners at the Civil Service Commission always go into the marks. We have a permanent staff of examiners, as well as the occasional examiners whom we appoint to carry out particular examinations.

326. *Sir H. Roscoe.* Do your examiners meet together for the purpose of marking the papers?—No; not in the Army examinations. That is to say, there is no meeting of the examiners who have set and looked over the papers.

327. Does your experience bear out the usual conclusion with regard to that, namely, that a meeting of the examiners is a very useful thing?—Yes.

328. We have found that system very useful at the London University and at the Victoria University?—Our system is somewhat different.

329. Is your system inimical to that method of procedure?—No; but our system is competitive, and candidates are necessarily arranged in numerical order. We settle our lists on the aggregate of the marks, and when the marks run very close together, our own examiners go over the papers.

330. *Mr. Roby.* Do the examiners make out the papers themselves?—The papers to be given to the candidates are made out in manuscript by the occasional examiners, the papers are then looked over by our own permanent examiners, who submit them to the Commissioners, who form their own opinion upon them.

331. *The Chairman.* You have given us some detailed figures as regards the combinations of optional subjects in recent examinations for Woolwich, can you give us some similar figures bearing upon the case of Sandhurst?—Yes.

Sandhurst, December, 1892.

Higher Mathematics + one Modern Language.

8 { Schools, 0
Special preparation, 8

German was taken by 7 out of the 8.

Modern Language + one scientific subject.

9 { Schools, 1
Special preparation, 8

Greek + one Modern Language.

2 { Schools, 0
Special preparation, 2

Greek + English History.

16 { Schools, 6
Special preparation, 10

English History + one scientific subject.

5 { Schools, 1
Special preparation, 4

Modern Languages + English History.

43 { Schools, 14
Special preparation, 29

German was taken by 39 out of the 43.

Two scientific subjects.

2 { Schools, 0
Special preparation, 2

Higher Mathematics + one scientific subject.

3 { Schools, 2
Special preparation, 1

Higher Mathematics + Greek.

4 { Schools, 2
Special preparation, 2

Greek + one scientific subject.

3 { Schools, 1
Special preparation, 2

Higher Mathematics + English History.

5 { Schools, 1
Special preparation, 4

So that out of 100 candidates 28 came direct from the public schools and 72 after special preparation, 33 of the 100 were over 19 years of age, and 15 of the 72 were at school within six months of the examination.

Sandhurst, June, 1893.

Greek and Science.

1	Schools,	1
	Special preparation,	0

Higher Mathematics + one Modern Language.

6	Schools,	3
	Special preparation,	3

Modern Language + Science.

19	Schools,	6
	Special preparation,	13

Greek + Modern Language.

9	Schools,	7
	Special preparation,	2

Greek + English History.

9	Schools,	5
	Special preparation,	4

English History + one scientific subject.

11	Schools,	2
	Special preparation,	9

Higher Mathematics + English History.

4	Schools,	0
	Special preparation,	4

Modern Language + English History.

23	Schools,	7
	Special preparation,	16

Two scientific subjects.

5	Schools,	2
	Special preparation,	3

So that out of 88 candidates, 34 came direct from the public schools and 54 after special preparation, but 11 out of the 54 were at school within six months of the examination. In this examination the maximum age was reduced from 20 to 19.

332. *Mr. Roby.* Do the crammers teach well?—Yes, I have not a word to say against their teaching; I think the name applied to them is unjust; they do their work well and provide excellent tutors.

333. Was the general performance, when the age was reduced for Sandhurst, as good as before?—I should say, looking to the general reports, that the performance of the candidates is as good as ever it was; in fact I think if you look at the statement of ages in the November examination for Sandhurst, you will see that, when the age was 20, the oldest candidates were by no means the highest on the list.

334. Is the general marking rather liberal; for instance, would you give something like full marks if a candidate had not come up to an ideal standard?—We regard the maximum as an ideal figure; I should consider three-fourths as very good.

335. Do the generality of the better candidates get as high as three-fourths?—The best would do so.

336. *Sir H. Roscoe.* Looking at the figures you have given us for Sandhurst, the line of least resistance is evidently Modern Languages and English History?—Yes.

337. Do you consider that a satisfactory state of things?—It is not altogether satisfactory; but I do not see how you can help it if you give candidates any option at all; English History is no doubt the subject most easily crammed.

338. *Mr. Roby.* Possibly from taking the greatest amount of interest in it?—Yes, there are a considerable number of boys who take it up because there is an interest in it.

339. *Sir H. Roscoe.* Might it not be possible to put some sort of brake upon that series of subjects?—I think if you attempted to do that, you would bar it altogether: that is to say, if you marked English History lower, you would give a bounty to other subjects, and the result would be that candidates would not take up English History, because they could not afford to do so even though they had a turn for it. You must remember that the Sandhurst examinations have nothing whatever to do with scientific branches of the Army, and therefore the weight to be attached to a scientific subject is not so great as in the case of Woolwich.

340. *The Chairman.* Have you any amendments to suggest for the Sandhurst examinations?—Nothing beyond what I have suggested in the case of Physics. I think any radical alteration would be fatal to the scheme.

341. Would that also apply equally to Woolwich?—Yes.

342. *Mr. Roby.* Your main objection is that it might disturb too greatly our chance of getting good candidates from the schools?—Yes.

343. *General Sir W. Lennox.* Would it make any difference if we took Latin from Class I., where it is now "obligatory," and put it in Class III., where it would be optional?—We should destroy the principle upon which the scheme was framed.

344. *Mr. MacNeill.* You say that you have been able to bring pressure upon the public schools?—Yes.

345. Then would it not be a fair thing, if it could be done, to say to the public schools, "We will, in future, give a special value to History"?—Having regard to the principle on which the examinations are based, we could not do that without upsetting the system. We do not profess to give an educational lead; we can, and do, stimulate the energies of the schools by competition; but if we should try to prescribe subjects to them we should upset the whole thing at once. Our object is to select the ablest candidates for the Army, and an attempt to define a special course of education would limit our field of selection.

346. If we had such subjects as Political History, and Military History, they could not be crammed, could they; they would have to know the facts?—I do not think you would get boys to take up Political History.

347. *General Sir W. Lennox.* A knowledge of Military History would be of no use to the candidates who failed for the Army, would it?—No.

348. What number of candidates do you get up for commissions?—For Sandhurst 600 or 700 will come up for 120 places.

349. *Mr. Roby.* Why do you offer no encouragement for English Literature, except such as is contained in English Composition?—In the old days the subject was found to be very much crammed; it has never been systematically taught in the schools, and therefore when the classification system was introduced it was deliberately struck out.

350. Is that your opinion still?—Yes, so far as the schools are concerned. We have the subject in the examinations for the Indian and the Home Civil Service, Class I., and on the whole with good results.

(*The*) *Witness withdrew.*

WEDNESDAY, 15TH NOVEMBER, 1893.

Present:

Lord SANDHURST, *Chairman.*

Members:

Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Dr. W. A. HUNTER, M.P.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Mr. WALTER DURNFORD, *examined.*

351. *The Chairman.* You are the Master of the Army School at Eton, I believe?—Yes.

352. For how long have you held that position?—I have held it for two different periods, the first of which extended from 1878 to 1883; I then gave it up, but afterwards resumed it in 1887, and I have held it continuously from that date.

353. Have you had great experience in observing the class of boys who come up for the Army, and also of observing the examination for which they are prepared?—Yes.

354. Do you agree with the reduction of the age to 19?—I think that is a very desirable change; 19 is a reasonable outside age for a boy to enter at Sandhurst, especially now that the time to be spent there has been increased. From the point of view of the public schools it is also a convenient time, because I imagine that in all schools the boys have to leave about that age, and therefore the times practically coincide.

355. Do you think it is a good plan to have the boys going straight from the discipline of the public schools into the military colleges?—Yes.

356. *Mr. Roby.* Do you see any advantage or disadvantage in there being an interval of, say, six months, to allow for their going abroad in order to study some modern language?—I think a boy ought to be so well grounded in modern languages that he ought to be fit to go into Sandhurst; in all probability the final polishing up could be done in a foreign country, especially now that a considerable period of time elapses before a man gets his commission after leaving Sandhurst, and that time might be very well employed in that way.

357. *The Chairman.* Would not the natural tendency be to take a long holiday after all this hard work?—Yes, but very many do go abroad during that time, and I think it an extremely useful way of spending the time.

358. Do you find that the numbers you pass into the Army are increasing?—I think the average remains very much the same as it was. Since 1887 we have passed 68 boys into Sandhurst, that is about 11 every year. Some of our other boys have gone in, but not straight from us, they have gone in after being for a short time with a private tutor.

359. *Mr. Roby.* I see the Returns show 96 boys from Eton in four years?—That includes as well all the boys who have been for any part of their time at Eton. The number of boys going up from Eton to Woolwich is very much smaller than the number going up to Sandhurst; I think we have passed about 18 in those years into Woolwich.

360. *The Chairman.* Are your boys of about the same standard, physically, as the other boys of the school?—Yes, I should say so.

361. How many subjects do you think a boy ought to take up in an examination of this sort?—The system which prevailed until the last change was, in my opinion, the best; that is to say, a boy ought to be allowed to take up four of the main subjects, Mathematics, Latin, and a modern language, either French or German, those he must take up, and then he had the choice of a fourth subject which would probably be some branch of science or English history, or another modern language, or say Greek. When the change was made they were allowed to take up a fifth subject. Besides the main subjects there are the English essay, geometrical drawing and freehand drawing, which are rather subsidiary subjects, but a boy is very likely to take them up. I consider that four of the main subjects were really enough, it was a mistake to add a fifth.

362. In your opinion are the obligatory subjects the best that can be taken up?—Yes, I think so, mathematics are absolutely necessary, and a modern language is necessary, and I think on the whole Latin is a subject which ought to be obligatory; I think it is absurd that a boy should proceed to learn one of the Romance languages before learning Latin.

363. Would you agree to take English instead of Latin?—No, because I think that would completely disorganize the teaching of the public and private schools.

364. *Mr. Roby.* Is that your main reason?—Yes.

365. But looking at it simply from the point of view of the Army, would you put Latin in the same position as you do now?—Yes, I think so, because the boys are not so much to be instructed as to be educated.

366. Would you object to an alternative to Latin being given, say German?—It might be a good alternative. My difficulty is that it would cause very great inconvenience.

367. *Mr. Whitmore.* Is there any difficulty in teaching modern languages now at Eton?—No, we have a very good staff of teachers.

368. *Mr. Roby.* Can the boys obtain a colloquial knowledge?—Yes.

369. *The Chairman.* Is history taught at Eton?—Yes.

370. Is geography taught?—It was, until the last regulations came out, taught as one of the Preliminary subjects for the Army; but, the Preliminary having been abolished, we are now in some difficulty to know what to do.

371. Supposing a boy fails for the Army, he is not necessarily debarred from going into any other profession?—No.

372. Do you think that Mathematics, Latin, and one modern language form a very good basis for most professions?—Yes.

373. Has it ever occurred to you to take English instead of Latin, and make the fourth subject a scientific subject?—No. But do you mean by English the teaching of English as a language, or do you mean the imparting of a knowledge of English literature?

374. A certain knowledge of English history?—That is already a voluntary subject, and I think a considerable number of candidates take it up.

375. Would you like to see any French or German history introduced?—There is already a certain amount of French and German history in the papers set in those languages, because in those papers, under the present system, questions are set in the literature and history of the countries; but the questions are so vague that I doubt whether they are very useful, besides which, the questions set vary so extremely. It was in June, 1892, without any previous notice, that questions in French and German literature and history were first set; and they were hard questions, especially those in the German. In the following examination, in November, 1892, the questions were very much easier, and in that examination the questions on German history were entirely left out. At present we have nothing to show whether the Commissioners expect a knowledge of the whole of French history and French literature from the boys, or whether they wish only a particular period to be taken. For myself, I do not wish to see those questions abolished, but I think it would be a good thing if the Commissioners would give for each examination some particular period in French and German history and literature of which the candidates would be expected to have a knowledge.

376. Would you like the War Office to step in and lay down some rule as to what they require?—Yes, I do not care into what blocks the programme is divided, the whole of each subject is too wide for any candidate to take up; and then, perhaps, after they have tried to do all, they get only two questions put to them.

377. If they did that, would they not do it with a view to get the schools to set their curriculum as they required it? Whereas, in a memorandum, which has been put in by the Civil Service Commissioners, they distinctly point to the fact that they have arranged their subjects so as to come into line with the public schools. This is what they say: "In determining the character of the entrance examinations we have sought to harmonize the subjects with those taught in the public schools"?—I think there must be some slight misapprehension upon that point, because these subjects were started without any previous warning.

378. *Mr. Roby.* Are you, yourself, favourable to competitive examinations in such subjects as English and French history and literature, do not you think they lead almost inevitably to cramming?—Yes, I do, and I think they are bound to lead to useless cram when you have such vague subjects as the *whole* of English literature or the *whole* of French history.

379. Some gentlemen who have written upon the matter have very strongly recommended that in testing English or French or German, we ought to take simply the result of any English or French or German composition in translation?—I know that view is held by a good many people, but I do not agree with it; I think it is a good thing for the boys to have French history and French literature put before them side by side with a knowledge of the language.

380. And you think that would not be done at the schools unless we distinctly required it in the examination?—I think not; I think the tutors will follow closely the lines of the examination.

381. It has been suggested that the English subject should be simply a piece of English composition and a review of some English work, do not you think that offers a very considerable opportunity of showing a man's knowledge?—Very much so, but is not that already provided for by the English essay?

382. Have you had any experience of teaching boys to write digests, that is, the putting of matters in a telling form?—No.

383. *Mr. Whitmore.* When you do teach English, what do you do?—I do not teach English now, but under the old system when I taught boys for the Army, there was an English subject, and that consisted in taking certain books which were got up, but I doubt whether that was a good thing. It was merely a literary test, and the number of books not being large, it gradually degenerated into a very undesirable cram.

384. *Mr. Roby.* Do you give instruction in all the subjects?—No, only in Latin and Greek, and, to some extent, in English History, but I supervise generally all the subjects.

385. Have you special teachers for mathematics, or do the boys go into the other forms?—There are two or three mathematical masters who are told off for our department for a certain number of hours.

386. Are the boys kept all together in your department?—They are quite separate from the other boys.

387. Why do you send more to Sandhurst than to Woolwich?—That is rather on account of the social position of the boys, who are generally well off; and many of whom are intended for the Guards and the Cavalry regiments.

388. I see that Eton sends the largest number of all, excepting Wellington?—I should say that would be so; Wellington is essentially a military school, but you must remember that Eton has about double the number of boys that such schools as Harrow and Winchester have.

389. *The Chairman.* There are three subjects which are called "obligatory" subjects, mathematics, Latin and a modern language, but it is a fact, is it not, that some boys have a greater talent for science than for modern languages, and *vice versâ*?—Yes.

390. Does it appear hard to you that a boy might be unsuccessful because he was not high in Latin, whereas he might get a high place if he took up another scientific subject; that is, supposing he could take up two instead of one, as at present?—I see no objection to that, but I think there ought to be some subjects which are not alternative. I think Latin ought to be an obligatory subject with everybody.

391. *Mr. Roby.* Do you mean that unless a boy got one-third marks he should be plucked?—I mean that he should be obliged to take it up, or lose by being one subject out.

392. *General Sir W. O. Lennox.* He is now obliged to take it up, and he does that sometimes by only writing his number at the top of his paper—he may get only five marks, do you call that taking it up?—Yes.

393. That is scarcely "obligatory," is it?—It is just the same in the case of mathematics and the modern languages, a boy can if he likes do nothing more than put his name at the top of his paper.

394. *The Chairman.* Do you wish to suggest any alterations in the system of marking?—I think, on the whole, the marking is fair enough, though, perhaps, science is sometimes too highly marked. I notice that sometimes a boy will get, with only one and a half year's work, as many marks for science, as he will get for Latin or mathematics, at which he has worked for years, and that means, I think, that the subject is easier to get up.

395. *Mr. Roby.* Do you think the papers in science are easier than the papers in Latin?—I cannot say myself, but I gather from the people who teach science that they are; I am thinking now more particularly of physical geography and physiography. Chemistry I am told is also marked high.

396. But we are told that science does not get a sufficient share of the marks at present?—I do not think that that is the case.

397. Would you say that the marks given should have some reference to the time spent on the subject?—Yes, I think so with regard to boys of about the same ability.

398. *Mr. Hunter.* Supposing a subject is very badly taught, or taught on a wrong system, over which a lot of time has been wasted, do you think equal marks should be given then?—I think the subjects must be all assumed to be all taught fairly well.

399. *Mr. Roby.* You have been comparing science with languages, which perhaps a boy has taken up early, but do you think with one and a half year's work at French he would get as many marks as he would in science for the same period?—Certainly not.

400. *The Chairman.* Your general idea is that science is too highly marked now?—Yes, but I do not wish to throw any impediments in the way of science.

401. *Mr. Whitmore.* Do you think candidates take it up because they think it is an easy subject?—Yes, I think so.

402. *The Chairman.* I think the statistics prove rather the opposite, because some schools show that the number taking up science is decreasing?—It is increasing with us.

403. What is your opinion on the marking for history?—It has always struck me that the marks were low for history, though I have nothing to complain of. I should like to see it more highly marked, but personally I should not like to see anything done which would exclude Latin.

404. *Mr. Whitmore.* Do you think if that were done it would destroy the Army Class at Eton?—I do not think so, of course we should have to make the best of it.

405. *The Chairman.* If the War Office laid down distinctly what it did require, do you think the schools would adapt themselves to the requirements?—Yes.

406. *Mr. Roby.* How would you like a system of giving a boy a free choice of four or five subjects, but allowing him to count only the marks above a certain number, say about 25 per cent. uniformly?—I think such a system as that prevails in the Indian Civil Service; I see no objection to it.

407. Would you require in that case that they should take up one or two subjects, or would you be content with leaving them a perfectly free choice?—I think I should say free choice.

408. They might take up mathematics, French and two or three physical subjects, and some English?—Yes.

409. Would you be content with those?—Yes, assuming that you are going to do away with Latin in the sense of its being an obligatory subject, which I think would be a mistake.

410. Supposing Latin had 3,000 marks instead of 2,000 as at present, do you think that would be better?—Yes, but I do not wish to speak for Latin as against mathematics, because I think mathematics is as valuable a subject as Latin.

411. *Mr. MacNeill.* There are practically no obligatory subjects, for we have been told of one gentleman who got only 12 marks out of 2,000 for Latin?—I think such a case as that must be very rare; besides if a candidate is so good in other subjects that he can afford to throw away 2,000 marks, I certainly think he ought to be admitted.

412. *Mr. Hunter.* By taking off a certain percentage of marks all round we should discourage a merely superficial acquaintance with a subject, should we not?—Yes.

413. And if that were carried out it would enable us to give a larger selection of subjects?—I would not allow a boy to take up more subjects; but I would give him greater choice.

414. The great objection to allowing too many subjects is that a boy may dissipate his energies, and learn nothing well; that of course would be stopped by taking off a certain percentage. There are certain subjects required in the Army for use, such as geometrical drawing, for instance; but apart from that, and dealing with the general education of the candidates, do you see any reason why a different test should be applied to candidates for the Army from that applied to candidates for the branches of the Civil Service?—I think not.

415. *Mr. Roby.* Do the boys in your Army class differ in any respect from the boys in the other classes?—No.

416. Do they mix freely with the other boys?—Yes.

417. Have you had instances of boys coming up for this examination who were not in the Army class at all?—Yes, I have known two or three of our clever boys do that, but they were distinctly clever boys.

418. *Mr. Whitmore.* Is there anything in the teaching in the Army class which deters the cleverest Eton boys from going into that class?—No.

419. *The Chairman.* Do you in that class endeavour to combine the advantages of cram, so to speak, with the discipline of the public schools?—Yes.

420. *Mr. Roby.* Is there more individual tuition in that class than in any other part of the school, does the master act more as a private tutor?—Not theoretically certainly, but practically I think he does, because the classes are rather small. The mathematical tutors tell me that the Sandhurst mathematical course is rather more difficult, and not quite so satisfactory to train in as the Woolwich Course, because the papers are hardly long enough, or numerous enough to cover that course. There are at present four subjects, Euclid, algebra, trigonometry, and mensuration; Euclid and trigonometry are now grouped together in one paper, and their complaint is rather that it would be well to put those into separate papers so that the ground might be more satisfactorily covered in the examination.

421. *The Chairman.* A certain amount of correspondence has taken place lately on the subject of giving marks for physical fitness, have you anything to say with regard to that; do you think it advisable?—My own opinion is that it is really impossible to combine a competitive examination in literary subjects with a physical examination. I think the present medical test is quite strong enough to exclude weakly boys.

422. *Mr. Roby.* Have you noticed that below the 50th place the difference between the marks of the boys who get in and the boys who do not get in is very little; would it be possible to give marks to those boys for their physical powers (the marks so given to be added to their other marks) on the supposition, of course, that the boys are nearly all equal as to intellectual fitness?—I have not thought about that; but, as regards the physical powers, would you give marks for proficiency in games and exercises, or for mere physical development?

423. *Lieut.-General Sir R. Gipps.* Supposing we took three qualifications, and gave 900 marks and divided them equally, giving 300 for athletics, 300 for riding, and 300 for physical powers?—I think allotting marks for riding would be somewhat unfair.

424. *Lieut.-General Sir R. Gipps.* You mean because some boys have had no opportunity of getting upon a horse, but that is quite another question?—I think there would be great difficulty in regard to that.

425. *Mr. Roby.* A man accustomed to riding from his youth is a far better man as a rider than a man trained afterwards, and therefore he would be the better man for the Army; and that plan, therefore, would give a power of selection, based, no doubt, to some extent, upon the accident of birth?—It might be an advantage; it seems a good thing.

426. Would you be inclined to give marks entirely for athletics?—No; I would not give marks for speed

in running, because I think that would probably be bad for the boys. I do not think it desirable to make that a test at that age.

427. Suppose you gave marks to a boy who covered 20 miles in (say) five hours, and came in so fresh that the Medical Officer, who examined him at the commencement and at the finish, could say that he had powers of endurance?—I think that would be a difficult thing to do; the chest measurement might be made a test.

428. *General Sir W. O. Lennox.* Would chest measurement give any indication of the powers of endurance?—Perhaps not.

429. *Mr. Whitmore.* Supposing an examination of that kind were attempted, would you not have to consider each man's claims very carefully?—Yes.

430. *Mr. Roby.* Have you noticed amongst the boys from Eton whether the successful ones are at all physically inferior to the unsuccessful ones?—Yes, perhaps they are sometimes.

431. Are they distinctly inferior to the class it is desirable to have in the Army?—I have known instances of such, but they are not frequent. I think the medical test has become very much more severe of late than it was formerly, for more boys fail now than was the case four or five years ago.

432. *The Chairman.* Then with regard to a physical test, may we take it that you are of opinion that, first of all, it is almost impracticable, and even supposing it were carried out it might be misleading?—That might be too strong a way of putting it, but speaking generally, I am not in favour of a physical test, except, perhaps, as applied to a very inferior boy. I cannot form, in my own mind, any plan upon which it could satisfactorily be carried out.

433. Are boys who are not organically sound and healthy sent to a school like Eton?—Yes, we have a large number who are most ricketty, but of course that class do not often go into the Army.

434. *Mr. MacNeill.* Would you allow a boy in confirmed ill-health to go into Eton?—Yes, there is no sort of prohibition at all.

435. *The Chairman.* Do you offer any advice as to the possibility of a boy not being fit for soldiering?—I have done such a thing when I saw a boy was weakly, or small, or short-sighted.

436. *Mr. Roby.* Have you come across any cases of colour-blindness in your boys?—Very rarely. An examination was made of all the boys some years ago, and the percentage of those who were colour-blind was very small. The test in that case was with skeins of coloured silk.

437. *The Chairman.* I presume the boys going to the Army from such schools as Eton and Rugby are much more athletic than the boys from, say, St. Paul's School?—I think all the public schools are now alive to having all their boys properly trained, though, of course, in the case of a London school, it is more difficult to get the necessary fresh air and exercise than it is with us. I think the boys from other public schools do not compare unfavourably with the boys from Eton.

438. *Lieut.-General Sir R. Gipps.* You object to a physical test, chiefly because of the difficulty of carrying it out, but if it could be carried out satisfactorily, I presume you would have no objection to it?—No, provided you do not allot too many marks to it.

439. *Mr. MacNeill.* In the Army examinations, the subjects for examination, and the marking of the papers, are usually committed to one examiner; that is to say, there is only one man who does mathematics, and so on, but would it not be better that there should be two or three to do that? It seems to me that so much depends upon the caprice of the examiner, and, therefore do not you think it would be a good thing to have some corrective, and have two or three gentlemen to look at the papers?—That would undoubtedly be a good thing.

440. Have you not found sometimes that boys of whom you expected a great deal got low marks, and *vice versâ*, and if that is so, do not you think it would be advisable to have, say, a court of examiners?—Yes, but I ought to add that I do not know how the examinations are carried on by the Civil Service Commissioners. There is, however, no doubt that the plan of marking varies very much according to the different examiners.

441. It makes a very great difference to some candidates if the mathematics are marked high, and the classics are marked low?—Yes, certainly.

442. An objection to increasing the number of examiners has been raised on the score of expense; but do you think the expense ought to come in in such a question as this?—I think the question of expense ought not to enter into it, because the career of a boy almost entirely depends upon the result.

443. *General Sir W. O. Lennox.* Do you think the fact of your having been surprised at the low marks of a boy of whom you expected higher things, has had anything to do with the boy's temperament as affected by the examination room?—I think not.

444. *Mr. Hunter.* Supposing you had two examiners, and one marked a paper 600 marks and the other 800 marks, what would you do?—Add the marks together and divide them, I think.

445. Do you think that is a fair method?—I do not know, but that is the method in vogue at the Universities; in the tripos at Cambridge no paper is looked over and marked by only one examiner.

446. But even so cannot an examiner who has crotchets increase the number of marks for his favourite subject so as to cause unfairness to be done?—I think it is impossible to get over the vagaries of the different examiners, but I think an examiner would be better able to air his fads if he were by himself, than if there were another examiner with him.

447. *The Chairman.* Have you anything to say with regard to the examinations for Woolwich?—Personally I think they are satisfactory, but I have talked the matter over with one of the mathematical masters, and he said he thought some alterations might be made in the higher mathematics; he thought the range of subjects was very wide for boys of that age; it would be better, therefore, to have the papers longer so as to give a greater choice, and to have full marks given for about one-third or one-half of the paper.

448. Do the opinions you hold as to the value of Latin, and so on, apply to Woolwich equally with Sandhurst?—Yes, in every respect.

449. *Mr. Roby.* Differential calculus is now excluded altogether from the examination, have you any observations to make upon that?—No.

450. Have you heard any criticisms passed upon the examinations in such subjects as heat, light, &c.?—No, we have had very little experience in those subjects, although we have a very good laboratory.

451. *The Chairman.* Can you say that the examination for Woolwich, in regard to the work that Artillerymen and Engineers have to do, ought to be more scientific than it is?—I do not think I can say that.

452. *Mr. Roby.* In the Army Class at Eton, are French and German taught in the same way as Latin?—Yes.

453. Supposing, for instance, that Latin was retained for grammatical training, could not French be taught in as popular way as possible?—It might be possible to do that; but at present I do not think there is any great difficulty in getting a fair knowledge of French from our boys: in fact, I think we really do get a fair knowledge of French.

454. *The Chairman.* Would you agree to the plan of having mathematics, Latin, science, French, and German all marked in the same way, and giving a boy the choice of subjects, but taking off (say) 25 per cent. of the marks obtained, so as to allow him to count only his knowledge above a smattering?—I do not think, personally, I should like that as well as the present system.

455. *Mr. Roby.* Would you be particularly afraid of boys making a very eccentric choice?—No, I think not.

456. *The Chairman.* Would it make any difference; would not there be a disposition on the part of the boys to take Latin, which they have been learning all along?—Yes, I think so. They would probably take up the subjects in which they thought they would do best.

457. *Mr. Roby.* Are the boys in your Army class as good in Latin as the other boys in the school?—No, because my boys have to do a great deal more in other subjects.

458. *The Chairman.* How do the boys in the class compare in mathematics with the other boys in the school?—Very favourably.

459. *Mr. Roby.* Have those boys any particular liking for mathematics against Latin?—No, I think not.

460. *Mr. MacNeill.* Do you think that more scope should be given to history?—I should like to see greater encouragement given to English history. I think the papers are very fairly set, on the whole; but sometimes there might be some excisions made. At present, some of the general papers in English history range over the whole of the history, from the earliest times down to the present day. On the other hand, I have seen particular questions set which, I think, ought not to have been set. For instance, the boys have been asked what the effect of the Factory Acts had been. Sometimes an examiner has picked out a phrase from a particular book which he has been reading, and asked to what it applies. Such questions as those tend to discourage the boys.

461. These questions, however objectionable they may have been, have probably been designed to stay the hand of the crammer?—I think you can hardly cram general English history.

462. We have heard that it is a subject easily crammed?—I do not think personally that the general outlines of English history are easily crammed.

463. *Mr. Roby.* Have you noticed that the Civil Service Commissioners have given as an alternative to the composition paper, a list of grammatical questions, do you think one is more useful than the other?—I think it is a very good alternative.

464. Would you wish to add to the grammatical questions?—No, I think not, because the examiners can test that from the composition.

[*The Witness withdrew.*]

Mr. C. PENDLEBURY, *examined.*

(*See* also Appendix VIII.)

465. *The Chairman.* You are a master in St. Paul's school, I believe?—Yes.

466. How would you describe your school?—It is practically a day school for secondary education, with a small boarding element; the boarders live in masters' houses.

467. Does your school come in the class of "public schools"?—Yes.

468. Is there an Army class in your school?—Yes.

469. What proportion does it bear to the whole school?—About one-tenth; there are some 620 boys in the school, and the Army class numbers about 60.

470. Are you successful with the boys in the Army class?—In the Army class we prepare only for Woolwich; candidates for Sandhurst remain on the classical side.

471. Do many of those latter pass?—Comparatively few; so far as St. Paul's is concerned with the Army, it is mainly with Woolwich.

472. Are you successful with regard to Woolwich?—On the whole I think we are, but of course the numbers vary from time to time. Five passed of the six candidates who went up in November, 1892, and three more passed in the following June, making eight for the year.

473. Have you any suggestions to put before the Committee with regard to the subjects which boys going up for Woolwich are obliged to take up; at present the obligatory subjects are mathematics, Latin and one modern language, are you content with those three subjects?—I am content as far as the modern language is concerned, but we should like to see an alteration in regard to Latin. My colleague, who has charge of that subject, wants very much to see Cæsar set as a fixed book—not parts of it, but the whole—and all candidates to be required to have a knowledge of the history, method of warfare, and such matters. His suggestion is that one of the two prose pieces should always be taken from Cæsar.

474. *Mr. Roby.* Would not that lead to cram?—Not if the whole book were taken; if only a portion of it were taken, it might.

475. Does he think a knowledge of Cæsar would be of practical benefit in a South African campaign, for instance?—It is recommended, I am told, by Lord Wolseley and Colonel Maurice.

476. *The Chairman.* Do you think that Latin should retain its place as an obligatory subject?—Yes, certainly.

477. *Mr. Roby.* Do you for its own sake, or because any change would disturb the work of the schools?—For both reasons.

478. Do you think the knowledge of Latin is of great use to all individuals, or do you consider it a good subject to choose people by?—It is valuable as a means of mental training, although perhaps it may be of but little practical or professional use to an Officer in the Army.

479. Have you charge of the Army class?—Yes.

480. What does that mean?—I instruct them personally in mathematics, and I exercise a general superintendence over the other subjects.

481. Are you satisfied with the mathematical examination, that is as far as regards its general range?—I think there is an idea of adding arithmetic, and if that is done it will make the whole burden rather heavy. Some years ago arithmetic was taken off, and statics and dynamics were put in its place; if the statics and dynamics are to be retained and arithmetic added as well, it will make the whole range very wide.

482. You would not be an advocate for omitting arithmetic, would you?—No, not at all.

483. What would you be inclined to drop?—The only subjects which could be dropped are those which were last put on, namely, statics and dynamics. These might be put into Class II., under the heading Higher Mathematics.

484. Are the questions set, generally, such as you think suitable?—Yes.

485. With regard to a suggestion that the papers should be looked over and the marks arranged by more than one examiner, have you any strong opinion upon that point in regard to mathematics; do you think that two competent mathematical examiners would probably arrive at the same results?—Yes.

486. *Mr. Whitmore.* Have you had any cause to think the marking capricious?—Not in mathematics, but I must confess I did not understand why one of my boys who went up twice should get nearly 1,200 marks for chemistry the first time and only 600 the second time; he had shown no falling off in school, in fact he was altogether a brilliant boy.

487. Were there different examiners?—I do not know.

488. *Mr. Roby.* Was that boy subject to fits of nervousness?—No.

489. *The Chairman.* Was the paper on the second occasion of a more difficult character than the first one?—No; the boy professed to have done it all, and he was a boy whose judgment I could trust.

490. *Mr. Roby.* Is that a rare case?—Yes, certainly.

491. Do you think the physical subjects are marked highly enough?—I think they are marked as they ought to be; they now get 2,000 marks, and I should not like to see that number raised.

492. It has been suggested that one of them should be broken up, that electricity, and heat and light, should be put as separate subjects and given 2,000 marks for each; that is to say, it is considered desirable to acquire a more thorough knowledge of a part than to have a general knowledge of the whole?—Would a candidate be allowed to take up both?

493. No, only one?—That would, I think, be an improvement then, but I should like to see physics put into Class I., and made obligatory, with Latin, French, or German, and mathematics.

494. *Mr. Hunter.* But suppose, nevertheless, that you can get into the Army without scoring any marks in it, would you call that obligatory?—I use the word obligatory in the sense in which it is already used in the regulations now in force, *i.e.*, necessary only to be taken up.

495. Would you understand by that, that a man would not be allowed to pass unless he obtained a certain proportion of marks?—No, I should understand only that a candidate would not be allowed to take up any other subject as an alternative; that, I think, is what obligatory already means in Class I.

496. *Mr. Roby.* Which do you, yourself, lay most stress upon, chemistry, or heat, light and electricity?—The physical subjects, certainly.

497. *Mr. Whitmore.* Do you mean from an educational point of view?—Yes. Chemistry in its earlier stages seems to me to require but little more than a good memory, while the study of even elementary physics demands a considerable intellectual effort.

498. *Mr. Hunter.* Have you studied chemistry yourself?—I have studied both subjects to some extent.

499. *Mr. Roby.* It has been suggested that instead of having some subjects obligatory and others not, a boy should be allowed to take certain subjects, but he should only get marks for what knowledge he shows to be above a mere smattering; take off say, 25 or 30 per cent. of the marks, and only count those above that; do you think that would meet the difficulty of dividing things into obligatory and not obligatory?—I would prefer not to have the 25 per cent. taken off.

500. Has it ever struck you on looking over examination papers, that in marking men bit by bit you get a very small impression of them?—That often occurs.

501. If you struck off a certain percentage you would get a better residuum would you not?—An examiner in that case might mark more liberally.

502. *Mr. Whitmore.* Would not that be only in the case when he thought a man ought to get something out of it?—Sometimes a piece of work appears deserving of credit, although the result may be wrong, and there may be more than one inaccuracy in the process by which he has obtained it.

503. *Mr. Roby.* Do your 60 boys, of, I presume, various ages, all work together?—No, they are in three divisions for mathematics.

504. Are they in the same divisions for other subjects?—No, they are re-divided again for each of the other subjects, and they do all their work separately from the rest of the school.

505. Are they different in calibre, either bodily or mentally, from the rest of the boys in the school?—St. Paul's is mainly a classical school, and therefore most of the abler boys become classics.

506. Is the modern side a refuge for the destitute?—No, it is anything but that; as a rule, however, the ablest boys in the school do not go into it.

507. Do the best mathematicians in the school go into it?—They generally go to the universities, and not to Woolwich.

508. *The Chairman.* Would you like to see the examination for Sandhurst and Woolwich conducted as a joint examination?—Yes; with the limits of age for Sandhurst the same as for Woolwich, namely, 16 to 18.

509. Why?—Looking at the marks of the last examination, I noticed that, making allowance for the additional marks in mathematics given for Woolwich (500 more than for Sandhurst), many of the candidates who were not among those selected for admission to Woolwich would have come well up in the Sandhurst list.

510. *Mr. Roby.* Would you like to have a common examination, and allow them to choose?—Yes, just as now, in the case of Sandhurst they have to choose between Cavalry, Infantry, and the West India Regiment. Of course, for Woolwich, they could still be required to qualify in mathematics.

511. Do all your boys take up freehand drawing and geometrical drawing?—Yes.

512. *The Chairman.* Do you think that freehand drawing is sufficiently marked?—No, I should like to see the marks increased from 500 to 1,000.

513. *Mr. Roby.* Do you say that because you think it is a good thing for the Army, or because it is a good subject to select men by?—I think it is everything for an Officer in the Army; I am told so by my old boys.

514. Do you prepare for the English in this examination?—No, that is done by a classical master, but on the Army side.

515. *The Chairman.* Would you like to see history made an obligatory subject?—No, certainly not.

516. Are you content with the three obligatory subjects *plus* one scientific subject?—Yes.

517. *Mr. Roby.* Why are you so decided about history, do you think it is a bad subject for examination?—Yes, it depends too much upon the examiner and the marking is likely to be capricious. No two examiners would assign the same mark-value to the same paper.

518. *The Chairman.* Do boys learn any history in your school?—Only one boy has taken it up for Woolwich, and he has regretted doing so ever since. He dropped a term, or class, at the Academy, as history is of no value there.

519. *Mr. Roby.* What do you say with regard to physical geography and geology?—I should put them on the same footing as history. They can be easily crammed, and the marking is apt to be capricious.

520. But geography of some kind is some importance to a soldier, surely?—Yes, most certainly, but I do not consider geography a good subject for examination purposes.

521. *The Chairman.* Have any of your old boys ever said anything to you with regard to the scientific subjects?—No.

522. Are you satisfied with the marking, on the whole?—Yes. I have no recommendations to make upon that head; but, with regard to drawing, I should like to see the elements of descriptive geometry added to geometrical drawing. A knowledge of descriptive geometry is of very great importance to a cadet after admission, and it is certainly most desirable that the elements of the subject should be learned beforehand.

523. *Mr. Roby.* What do you mean by "descriptive geometry"?—The methods of representing a body of three dimensions by projection.

524. It is distinctively drawing, and not mathematics?—Yes, it is drawing.

525. *The Chairman.* With regard to some opinions upon these various subjects collected some weeks ago, one of the masters said this: "About eight to twelve years ago we had an efficient geography and geology class, but found it expedient to abandon it; as,

although a quick subject for moderate marks, it proved not to pay, compared with other non-science subjects. I have received frequent assurances from old boys that it is this branch of their school work which has subsequently proved of greatest utility, and afforded greatest pleasure." Do you endorse that?—I cannot offer an opinion, because none of my boys have taken up the subject.

526. *Mr. Roby.* Is there sufficient instruction in popular French given in your Army Class?—Yes; they have to talk French in class, and they are taught by a Frenchman.

527. *The Chairman.* Do they get good marks for it in the examinations?—Yes, they get from 1,200 to 1,500.

528. *Mr. Roby.* Is the French in the Army class as good as in the school generally?—Quite as good.

529. *The Chairman.* Do you attribute any importance to an examination in physical capacity?—I should like to see such an examination introduced.

530. How would you propose to carry it out?—It is very difficult to say; the only things that boys could be examined in are, I think, ordinary gymnastics, fencing, boxing, and riding. I would give marks according to excellence in these subjects, but they should not be very high marks.

531. Would not riding be rather an unfair subject, because some boys have greater facilities than others in that respect?—Yes, it might perhaps be difficult to deal with.

532. *Mr. Roby.* Have you thought anything about any physical tests in regard to width round the chest, height and eyesight?—I should prefer tests in the more active forms of physical exercise.

533. Are gymnastics taught to all your boys?—Yes, systematically. I think the existing medical examination answers its special purpose sufficiently well.

534. *The Chairman.* Supposing that really the medical examination were properly carried out, do you think that would be sufficient medical test, or would you like a physical test as well as a medical test?—I should like a physical test as well as a medical test—the physical test alone to carry marks.

535. *Mr. Whitmore.* Would you make that apply to candidates right up at the top of the list, or would you agree to a suggestion that has been made to apply the physical test only to the boys who are lower down on the list?—I would certainly apply it from top to bottom or not at all. I do not believe in an "intellectual gulf."

536. *Mr. Roby.* Between the 50th and 250th on the list there is a difference in marks of only about 14 per cent.?—I do not lay much stress upon that; 12 months ago 50 candidates were taken, and a boy of mine was 55th. He was subsequently admitted, and now has been admitted into the Engineer class; that is to say, he has risen to a place in the first 20. I do not think it would have been fair in the examination for admission to have applied to him a test from which those above him were exempt. That sort of thing has happened over and over again, because some boys make very rapid strides after they get into the Academy. I do not, myself, care much what place they get on admission, so long as they do get in somewhere. I think more of their place 12 months later, when they are divided between the Artillery and the Engineers.

537. But suppose the physical test were applied?—Then I would not mark physical powers very heavily.

538. But unless it is marked pretty well, would it make much difference in the result?—I cannot form any idea whether the marks of 100 boys would, in physical exercises, extend over a wide range or lie only within narrow limits.

539. The difference between the fiftieth and the last successful Infantry candidate for Sandhurst is 598 marks, that is only about 6 per cent. of the first candidate's marks. Now, if you are to have some of these in, would it not be well to have those in who are the best physically qualified, rather than those who in a small degree are only intellectually better than the others?—Taking 50 candidates, I cannot form an opinion as to whether the marks would range from nil to the maximum, or whether they would vary only slightly, and I would not mark physical qualifications heavily at first lest the range should turn out to be a wide one. The fact that the extreme marks on the written examination differ by so little, makes it *all the more* necessary that the marks for physical qualifications should not be high.

540. Suppose marks were given, would you give 2,000?—No, certainly not more than 500 to begin with

541. How would you conduct an examination in athletics?—I have had no experience of such an examination.

542. Would you trust an ordinary professional teacher to do it?—Not without supervision, certainly.

543. I presume a great proportion of the marks would go for neatness, would they not?—Yes.

544. Would neatness in action be a fair criterion of the powers of endurance and constitutional vigour which we want to get?—I do not think too high a value should be placed upon neatness.

545. There would be a tendency to do that, would there not?—Yes. I have watched some contests of the kind, and the prettiest performer has always obtained the loudest and most general applause.

546. And that, I presume, would be the case whether you took gymnastics or riding?—Yes, it must be so in all branches of athletics.

547. *The Chairman.* If there were a gymnastic examination, would it not tend rather to draw specialists, as it were, instead of good all-round healthy boys?—I think not if the test was sufficiently wide, but if the examination were in one or two branches of athletics only, it might have that tendency.

548. *Mr. Whitmore.* Have you found that weakly boys go up for the Army from St. Paul's School?—Those who have failed have generally failed on account of their eyesight.

549. Taking the candidates from your school as a class, are they vigorous and healthy?—They are certainly up to the average, and many are above it.

550. *The Chairman.* Do you think that the physique of the boys who now go up for the examination has deteriorated in any way, or are they much the same as formerly?—They have not deteriorated.

551. *Lieut.-General Sir R. Gipps.* Do the boys consider their physique when they are choosing the Army as their profession?—A boy who chooses the Army as his profession is naturally one of those who pay a good deal of attention to physique; I find that the two things generally go together. The boys in the Army class are well to the front in all school games.

552. Does your Army class fairly represent the finest boys in the school?—Yes, I think so.

553. *The Chairman.* Have you had many boys rejected, after passing the examination, on account of chest measurement?—None at all.

554. Do you think that the athletic requirements are sufficiently met by the chest measurement?—No, I do not think so.

555. The athletics are matters of special instruction, are they not?—Yes.

556. Would it be fair to expect a lad to go through these things at a time when he is working hard for the examination?—He ought to find time, or his mental work will suffer. I think it would certainly affect injuriously the results of his intellectual work if he did not take regular athletic exercise. The boys at St. Paul's play football and cricket, for which they have an excellent field of some 15 acres.

557. *Mr. Whitmore.* Is gymnastics part of the regular school work?—With the exception of the boys at the top of the school, who may go or not as they please, every boy has to go to the gymnasium regularly.

558. *The Chairman.* Would you have any running

or jumping tests?—If physical tests were introduced at all, it would be an advantage to have as many as possible.

559. *Mr. Roby.* That would make a very long business with 500 or 600 candidates, would it not?—It would, certainly.

560. *The Chairman.* Have you any views to lay before the Committee with regard to a common marking for the subjects in the obligatory list; at present mathematics are marked higher than Latin, or French, or German?—I certainly would not lower the mathematical marks in proportion.

561. Are you content with the marks as they stand?—Yes.

562. *Mr. Hunter.* With regard to utilitarian subjects, which it is necessary for an Officer in the Army to know, would you make geometrical drawing and freehand drawing obligatory, in this sense, that if they did not reach a certain standard they should not get in?—Yes.

563. There is a great difference between boys, some like mathematics and some do not?—All those who go to Woolwich must take mathematics.

564. But is it not a fair thing to let every form of intellectual exercise have an equal chance, and to allow boys to select their subjects?—Yes; but the youthfulness of the candidates should be taken into account, and, to some extent, the requirements of the military profession.

565. Would you see any objection to allowing a wide choice of subjects provided some precaution was taken of preventing a mere smattering of the subject reckoning for anything at all?—The wider the choice the better, subject to the conditions I have just stated.

566. And, therefore, make it a rule that 25 or 35 per cent. of the marks should be taken away before they begin to score?—No, I am not in favour of that; I should like everything to count.

567. *The Chairman.* But I understand you want drawing made a compulsory subject?—Yes.

568. Then that together with the scientific subject, Latin, mathematics, and one of two foreign languages, would make five compulsory subjects which must be taken up?—Yes.

569. Is not that quite as much as you can expect any boys to take up. An opinion has been expressed that four obligatory subjects are quite enough, and the present regulations lay down only three?—I do not think that five are really too many. But if those five were made obligatory I would reduce the number of subjects to be chosen out of Class II. from two to one.

570. Then, that makes six altogether, do you see any objection to that?—No, one only being allowed from the non-obligatory class.

571. *General Sir W. O. Lennox.* Do you prefer Class III., as it is?—If geometrical drawing with the elements of descriptive geometry be placed in Class I. (which is done as regards geometrical drawing in the latest regulations) I would leave freehand drawing with geography in Class III.

572. *Lieut.-General Sir R. Gipps.* With regard to the number of marks in the obligatory subjects, would you exact a minimum?—There is one in mathematics for Woolwich already, but especially if the number of obligatory subjects is increased, I should not like to see a minimum required in any other subject.

573. Would you like to see a maximum?—No, I would not.

[*The Witness withdrew.*]

FRIDAY, 17TH NOVEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord FRANCIS HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Dr. W. A. HUNTER, M.P.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Captain WALTER H. JAMES, *examined.*

(*See* also Appendix XI.)

574. *The Chairman.* You are, I believe, a private tutor?—Yes.

575. Have you had a very long experience in teaching the young men who come up for the Army?—I have been so engaged for about 13 years.

576. Have you pupils for any other profession than the Army?—Yes, for the Indian Civil Service, the Forest Department, the Indian Police, Coopers Hill, the Universities, and other miscellaneous examinations.

577. What is your opinion with regard to the literary examination at present in force?—The question which has first of all to be settled in regard to that is, is it to be a literary examination of such a character as will be advantageous for the Army, or

are you going to take the ordinary education of the ordinary average public-school boy, and test the candidate by that? Personally I have always held to the view that (as in the examinations for the Foreign Office and other similar examinations) you ought to have an examination which will bear in mind the ultimate destination of the examinee; that is to say, I am of opinion that the subjects given in the examination, whilst taking into consideration the ordinary system of education in vogue in the country, should also consider what you want an Officer ultimately to know; but at the same time I am one of those who do not like to tie down the examinations to a limited number of subjects. I think if you get what you require from every candidate, you should after that leave him a very wide range of subjects in which to show his special personal proficiency. To put it plainly, I have the greatest objection to the idea that every one should be made to conform to the same pattern in order to fit them for a particular career in life.

578. There are three obligatory subjects now—mathematics, Latin, and one foreign language. Are we to understand that instead of those three you would like to see six or seven subjects, which might include physics and English, including history and geometrical drawing?—What I mean is this. Let us assume that there are to be certain obligatory subjects, now what are they to be? I would certainly say mathematics, a foreign language, and geometrical drawing, because it is an absolute necessity for any one who is going to do any military work that he should understand what plans, &c., are. Then there is geography, and you are probably aware of the extreme English ignorance of this subject, which is, practically, not taught in the schools. For instance, I have a great deal to do with the preparation of Officers for the Staff College. They have to go through a very extensive course of history, and yet I have found some of them who did not know where Ulm is; they had heard of, perhaps, the River Danube, but where it was they did not know.

579. *Lord F. Hervey.* They had all passed the preliminary, I presume?—Yes, or an equivalent examination. Then again, I hold with the French and the Germans that an Officer should know the history of his own country, but we do not require anything of the sort. The schools do not regularly teach history or geography; and I hold that it is the function of such a body as this Committee rather to lead the schools in the right direction, instead of following them on the lines they have laid down for many centuries. I am not an opponent of the public schools in any way, I I believe in them a great deal; but I think that public-school masters are like other people, very human, and they have no more a tendency for drastic reforms than the majority of other people have, but they can teach any subject at those schools perfectly well if you will only require it of them. Now, dealing with the marks for Sandhurst, there are, as you see, 3,000 for mathematics; and, with reference to that, I would say that every boy going there must obtain 500 or 600 of those marks to qualify, and I would not, under any circumstances, allow him to pass unless he did obtain at least that proportion.

580. *Mr. Whitmore.* The effect of that would be to make it a really obligatory subject?—Yes, and not theoretically obligatory only; but I would not put the minimum at too high a point, because I do not want to say that everybody shall go through exactly the same mill. If there is a low qualifying minimum it enables a boy who is good at other subjects to make up in those.

581. *Lord F. Hervey.* For what purpose do you want this minimum for admission—into Sandhurst only, or for the admission to the Army through the Militia as well?—For both; the literary examination for the Militia is precisely the same.

582. Do you mean by your proposal that the Militia candidates should also get the 500 or 600 marks?—Yes, certainly. If you look at the course, you will see that my minimum is a very low one.

583. It is so low, is it not, that it would hardly affect anyone going into Sandhurst?—I do not think it would affect many.

584. If you had tried it at any of the recent examinations, I think you would find that it would not have affected any candidates but the Militia Officers?—I think it is a cruel kindness to pass a Militia Officer who gets only the minimum of about 3,200 marks, because those who get only that number nearly always fail in the Competitive. For getting only that minimum shows that a man has not got the capacity, which will enable him to successfully compete with the other candidates. My point is, that the filter you have instituted is not of a sufficiently close character to eliminate those who cannot eventually succeed. I would have five obligatory subjects: mathematics, a foreign language, geography, English history, and geometrical drawing, and on all of them I would place a minimum that would make them really obligatory, although the minimum should be low. I treat Latin with an entirely open mind; I do not care whether or not it be retained as obligatory; but if you put a minimum on it, you must keep it low also, because if it is high you will keep out many of the boys on the modern side of the public schools, for they do not do well in Latin.

585. *Mr. Roby.* What is the class of public schoolboy who comes to you?—I consider I usually get the average boy. The boys who can go to the Universities and take degrees with "honours," do not go into the Army, though, of course, I occasionally get some very good boys

586. Do you think it would be a good plan to have a minimum, and to count only the marks in excess of the minimum?—I do not think that would be a good plan.

587. But if there were many subjects, it would prevent boys taking up too many and getting only a smattering, would it not?—I should limit the number of subjects to be taken up.

588. *Lord F. Hervey.* Do you approve of the minimum arrangements adopted for the Indian Civil Service examinations?—Yes, the present ones I do not object to, but I did object to the former examinations, in which they took off 100 marks from some subjects; because, supposing the standard to be the same in each subject, the effect of that I could only describe as brutal upon some of the candidates. For instance, this meant a deduction of one-third from English history, one-fifth from French or German, one-eighth from Latin. It is obvious that the poorly marked subjects were thus severely handicapped.

589. *The Chairman.* How many subjects do you think a boy ought always to take up as obligatory?—Five.

590. But your five do not include any scientific subjects?—I would, in addition to the obligatory subjects, allow a boy to choose two others; but I would, for that choice, give him a very much wider field than he has at present. I think the obligatory subjects should be taken from the best educational standards, but after that I think a boy should be allowed to follow the natural bent of his genius, though always with a minimum in every subject. I would take geography out of Class II. and put it in Class I., for the reasons I have already given.

591. And would you give it 2,000 marks?—No, I would give it only 1,000 in Class I. It is rather in the giving of marks to the various subjects that I would offer inducements to Officers to study subjects which would be of use to them in the Army. For instance, I should call an Officer who did not know German a "one-eyed" man, because quite three-fourths of the literature which it would be worth his while to read is in German. I would induce Officers to study those subjects, which it is desirable they should know, by giving them higher marks. For instance, if mathematics are put at 3,000 marks, I would certainly put 2,500 each for French and German, in order to get Officers to study those languages, but if Latin is retained as an obligatory subject I would not give it more than 2,000.

592. *Lieut.-General Sir R. Gipps.* Suppose there were only one obligatory language, how many marks would you give for it?—2,500, and I would give the same number for each of the voluntary languages. I think you should have alternative languages in the obligatory class, and those languages should certainly be French and German. Geometrical drawing I would put at 1,000 marks as now, but I would give English history 2,000.

593. May we take it that you are anxious that the Officers should come up with two languages, and that you would give a high number of marks to each, in order to induce them to take them up?—Yes. I would in Class II. give a list of languages, and I would give each 2,500 marks.

594. That would make it possible for a man to get 5,000 marks out of two languages alone?—Yes.

595. *Lord F. Hervey.* Would you fix different maxima for different subjects in Class II?—Yes.

596. Then you would practically make it compulsory on candidates to take up the subjects to which you assigned the highest marks?—No, I think not, although it would be an inducement. If you refer to the old Woolwich report books, which show the result under such a system, you will find that candidates often took up poorly-marked subjects, because they were good at them.

597. In that case, must we not assume that a candidate was so good at them that it was worth his while to discard a better marked subject?—Yes.

598. Do you think that desirable?—I see no objection. I say that a boy must take up all my Class I. subjects, and any two in Class II. I should put English composition with 1,000 marks into Class I., and that would then leave only the free-hand drawing in the present Class III. I am distinctly of opinion that hitherto spelling has been overdone in these examinations. We have been told that it is to count in everything, but it is known to everybody that occasional slips in spelling are made by even very distinguished people. It has always seemed to me ridiculous that a boy who is good in chemistry, but who makes a few mistakes in spelling, should be placed in chemistry below a boy who is not so good as himself, but who has made fewer mistakes in spelling. That is not testing them in chemistry. If you are to have this question of spelling entering into all subjects, then you give rise to endless difficulties in regard to the marking. The question of spelling ought not to militate against a boy in chemistry, though it might be proper to consider it in such subjects as English history or English composition. I should put Greek into Class II., together with the modern languages, which I think ought to be extended. A few years ago, a boy could take up any modern language in the preliminary, and, as a matter of fact, one of my boys now in the Army took up Hindustani; he had been for a long time in India, and he was better at that language than at any other. I would add a large number of modern languages to Class II., any two of which might be taken up. I would not add out of the way languages like the Basque, for instance, but I would add Norwegian, Swedish, Danish, Russian, Italian, Roumanian, Hungarian, Turkish, Dutch, Portuguese, and Spanish; in fact, every important European language. I would, I think, give 2,500 marks for all the subjects in Class II., except Greek, which I would not mark higher than 2,000.

599. *General Sir W. O. Lennox.* With regard to what you have said about the Foreign Office candidates being obliged to take up languages, they are older than the men going into Sandhurst, are they not?—Yes.

600. Are you not aware that Officers in the Army can take up languages while in the Army and be examined in them?—Of course. I remember some years ago having three boys who got into Woolwich, one of whom took up Spanish, another Russian, and the third Italian.

601. *Lord F. Hervey.* Are you aware that the Italian was a perfect farce?—I know what you have in your mind; I do not think it was a farce in all cases; where it was, it was the fault of the examiners entirely.

602. *Mr. Roby.* In a competitive examination where many languages are taken, have you thought of the difficulty there is in arriving at an equal standard in the marking?—That difficulty must arise in every examination in which more than one subject is taken up.

603. For instance, the chances are that for Hungarian and Portuguese there would have to be special examiners, the ordinary examiners not being conversant with those two languages?—I do not think there would be much difficulty in that respect, because there are examiners for Turkish, Russian and Italian in the Army language examination now. With regard to science, I think it is a mistake to put electricity, magnetism, heat, light and sound all under one subject (physics), whereas chemistry is by itself; you practically ask a boy to do five subjects to count as one, and to put it in a popular phrase I think that is "asking too much for your money." I think I would leave sound out altogether, as it is practically a mathematical science. I would divide the other subjects as they were some time ago. I would put light and heat together, and electricity and magnetism together, and I would give 2,000 marks for each group. We have settled more or less upon the obligatory subjects, and now we come to the voluntary ones a boy may take up.

603*a*. Can he take up two languages and a science, or would you put the languages in Class II. with 2,500 marks, and Greek and the science in Class III., and say you may take two subjects out of Class II. and one out of Class III.?—That is a point upon which I think a great deal may be said on both sides. No doubt it is desirable to encourage the teaching of science, but I do not think you can do that well until a boy is about 17; I do not think, as a rule, a boy takes to science until he is that age, though I think he can learn languages more easily than science, because his reasoning powers are unripe before that.

604. *Lord F. Hervey.* Would you say that is so because languages require a lower type of intelligence than science?—I prefer to say it is, because until a boy's intelligence is developed he learns languages more easily than science.

605. *Mr. Roby.* Are we to understand what you suggest is that, beyond the obligatory subjects a boy might take up certainly two subjects, and possibly three if the third is a language?—I would limit the languages, if he takes a third subject, I would insist upon its being a science.

606. Would you say that he may take any two out of Class II., and unless he has already taken two languages, then he shall take another language?—Yes, as one of the three, if three subjects be allowed.

607. *Mr. MacNeill.* In the case of a language would you include not merely the structure of the language and the power to speak it colloquially, but also a knowledge of the general history and literature of the people to whom it belonged?—I am afraid that is too much to ask, although of course it is better to study a language together with the history and literature than without. I think, too, that it would result in the production of a lot of small compendiums applicable to those subjects, something like the Paley sheets one sees in Oxford and Cambridge.

608. *Lord F. Hervey.* Have you kept in mind boys of 18 and 19 when considering this scheme?—Yes, the average age for Woolwich is 17 to 17½, and for Sandhurst 18 to 18½. I have always been sorry that they abolished that table from the old Woolwich reports, showing the ages of the boys on going in; very few ever got in near the minimum age.

609. *Mr. Roby.* Do you not think you might have a lot of those little books got up for your history and geography?—They exist now.

610. What do you mean by "geography"?—I mean principally political geography; that is to say,

if a boy is asked where Rio de Janeiro is he ought to know where it is, so that in looking over the paper in the morning and reading the telegrams from abroad, he should know where the places are to which they refer; that I think the ordinary Englishman does not know. In France and Germany a knowledge of history and geography is required from students entering the Army.

611. Would you take English history as a whole, or would you divide it into different periods?—I think I should limit it to the later periods, beginning with, say, the Revolution.

612. Would you include in that anything in the way of European history?—English history in the last hundred years does mean practically European history.

613. But would you put questions upon the whole subject, or would you select a special period?—I would prefer a general scheme.

614. You have made geometrical drawing an obligatory subject, do you wish also to make freehand drawing obligatory?—No, personally I protest against freehand drawing, because I think the result shows that if a boy draws well he never gets any marks in it. I think the system of examination in that subject is wrong.

615. Do you wish to encourage in Army Officers the power to draw natural effects?—I think that would be a very good thing, but it would be a very difficult thing to test, and therefore I think I would leave it alone, though at Woolwich and Sandhurst ability to draw helps a boy very considerably.

616. *Mr. Whitmore.* Do you think the system under which drawing is examined is wrong?—Yes.

617. *Mr. Roby.* Do you think that too little attention is paid to the purely artistic qualities?—Judging by present results I think they do not pay any attention to that point at all.

618. *Lord F. Hervey.* Are you now expressing an opinion formed after very many years of observation?—Yes, and I have expressed the same opinion very frequently before. Coming back to the question of science, I should like to say that I would give mineralogy as an alternative to geology. I think it is a valuable subject, and I would mark it at 2,000. The science subjects would then run chemistry and magnetism, heat and light, and mineralogy or geology. I would also like to add zoology and botany. With regard to geometrical drawing, I think we have gone back of late years, and I think that subject should for the future include orthographic projection; if you did that it would teach boys what plans, elevations, and sections are.

619. *General Sir W. O. Lennox.* Would you call that descriptive geometry?—Yes, but it is not at all hard, and therefore I would not raise the marks for it; in fact, I am inclined to think that the present number of marks (1,000) is excessive for geometrical drawing limited, as it now is, to plane geometry.

620. *Mr. Roby.* Is there not some instruction in geometry given at Woolwich and Sandhurst?—Yes, but I think it is waste of time to do it there. I want the boys to know it before they get there.

621. *Mr. Hunter.* Would not the right distinction be to draw a line between those subjects which are necessary to an Officer in his professional studies and those which are not?—I should have no objection to that being done.

622. I gather that there are certain subjects, such as German, which if not absolutely necessary for an Officer, are in your opinion necessary for an efficient Officer?—Yes, that is so.

623. Then would not the proper course be to select first of all those subjects which are thought to be absolutely necessary, or extremely useful, to an Officer in his subsequent studies?—Yes, and I think my system would lead to that. My proposals would undoubtedly involve a certain amount of change in the ordinary system of education for the Army; but I think eventually you might say, "we require you to pass in certain subjects."

624. You have so arranged your subjects that a boy who is weak in languages and very strong in science would have a very poor chance in the examination; you allow a boy to take up three languages at 2,500 marks each, whereas you allow him to take up only one science?—Yes, because I hold that languages are more necessary to an Officer than science.

625. I can understand that for German but not in the case of Spanish?—Spanish is an absolute necessity in such a place as South America.

626. *Lord F. Hervey.* What is your standpoint in this matter, do you look at the question from the point of what it is desirable to have in an Officer in the Army?—Yes, I look at it from a practical utilitarian standpoint.

627. But have you considered that the question before us is not what an Officer ought to know, but what a boy turning into manhood and about to be admitted into Sandhurst ought to know?—Yes, but I say whatever standard you lay down will be taught up to, a distinct effort will be made in that direction, the teaching power of the country is perfectly able to meet your requirements. I do not think my suggested changes would make the slightest difference to the candidate from a public school. I get the average boy, and from what I know of him, I am perfectly certain that the public schools can teach anything.

628. Do you think that any injury would result from such an alteration of the system?—No, I do not; of course you cannot get over what I call the human and personal characteristics of the public schools, but the public schoolmasters can teach up to any standard you like to lay down.

629. *Mr. Roby.* Do you get many boys who have not been in any public school?—No, there are very few boys who do not go to the public schools, and from my experience I find that, with very trifling exceptions, all the boys who go into the Army are from the public schools.

630. *Lord F. Hervey.* What significance do you attach to the words "public schools" in the answer you have just given?—All the nine big schools, and also schools like Cheltenham, Clifton, Rossal, Fettes, Bedford, in fact all the grammar schools throughout the country.

631. With regard to mathematics, do you consider that the higher mathematics are fairly marked as compared with the other subjects in Class II.?—No, I do not. For Woolwich and Sandhurst we have exactly the same number of papers set, but I do not think that two are enough, I should like to see three, as it used to be; at present higher mathematics do not pay.

632. Do you think the subject could, with advantage, be so divided as to give candidates who really had a knowledge of mathematics an opportunity of making the subject pay?—Yes, but that involves an alteration in the marks; I would propose giving for that subject 3,000 marks instead of only 2,000, as at present. I would suggest arranging the subject in this way. These are my suggestions as to the course and marking of the papers in higher mathematics.

For Woolwich, Papers I., II., III. each 1,000=3,000.
For Sandhurst, Papers I., II., ,, 1,000=2,000.

Mathematics.

Paper I.

Higher algebra, exponential theorem.

Partial fractions, recurring series, summation of series.

Higher trigonometry, De Moivre's theorem.

Exponential values of the sine and cosine.

Hyperbolic functions.

Analytical geometry, straight line, circle, parabola, ellipse, and hyperbola, with easy problems.

Geometrical, conic sections.

Paper II.

Statics: The equilibrium of forces acting in one plane, and of parallel forces, the centre of gravity, the mechanical powers and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required.

Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, and collision and work. No application of the differential calculus to dynamics will be required.

Paper III.

Differential Calculus: Differentiation of functions of one independent variable. Taylor's and Maclaren's theorem and applications. Maxima and minima of functions of one independent variable. Tangents and normals to curves. Points of inflexion. Curvature. Involutes and evolutes.

Integral Calculus: Elementary integrations. Integration considered as summation. Rectification and quadrature of plane curves.

633. Would it strike you as a fair solution of the question that higher mathematics should be divided into two classes, each marked 2,000, leaving a candidate of distinguished proficiency to take up both?—You must allow everbody to take up both then?

634. Yes?—If you divide them into two you can allow them to count only as one subject.

635. It might be divided into two portions as physics, and you might allow a boy to take up both as two subjects?—I do not think that would be any good at all, it would not encourage a study of mathematics, because it requires a lot of time to attain proficiency in that subject. If you want to encourage the higher mathematics, you must do two things, you must increase the marks, and you must give the boy time to study. I think I would keep it at 2,000 for Sandhurst, but make it 3,000 for Woolwich, and add on the calculus.

636. Where would you place higher mathematics in your system?—I would put it in Class II.

637. As far as the Sandhurst candidates are concerned, they would get no advantage under your last suggestion?—No, because I do not think you want higher mathematics for the Cavalry and Infantry.

638. *Mr. Roby.* Do any foreign schools send up candidates for Woolwich and Sandhurst?—No, foreign mathematics are different from ours.

639. *The Chairman.* Have you formed any ideas upon the subject of a physical test?—I think you should insist upon a boy having the proper physical strength, but beyond that, I do not see what you are to do. Are you going to say that a boy who can run 100 yards in 10 seconds is better than a boy who can only do the distance in 10¼ seconds.

640. *Lord F. Hervey.* Would you limit your required qualifications to such measurements as can be left to the Medical Officer, and which do not involve anything to be done by the candidate?—I do not see how you can do otherwise.

641. *Mr. Roby.* Suppose you set a boy to do 20 miles in a fair time, say five hours, and he was examined at the start, and also at the finish, to see how it affected him?—I think it would be unfair to a boy to say you must go 20 miles in five hours.

642. *Lord F. Hervey.* Do you know that the suggestion has been put forward that a boy should do 30 miles in 7½ hours?—I think that would be absolutely ridiculous.

643. *The Chairman.* Do you think anything can be done in the way of an athletic test?—No.

644. *Mr. Roby.* Cannot some system be devised of testing the boys in the way I suggest, giving additional marks to those who come in in a good state?—I think not. All this means that at present undesirable boys are let into Sandhurst, and that, I maintain, is absolutely untrue.

645. *The Chairman.* Are the boys you now pass into the Army of much the same stamp as they were when you commenced 13 years ago?—If anything, they have improved. A boy going into the Army has to work hard, and he cannot do that unless he has a good constitution, unless he is good physically a boy cannot stand the work, and I unhesitatingly say that the boys who get into the Army now are everything that physically can be desired. As a rule, the boys who do well in the examinations are the best boys physically.

646. *Lord F. Hervey.* Do you know that as a fact?—Yes, that opinion is based upon my own observation.

647. And can you say with confidence that those who have passed within the last two or three years are equal to those who got into Sandhurst 20 years ago?—I think they are better.

648. A very high military authority has put it the other way?—I entirely disagree with him, and certainly in the last 13 years I have seen more of the candidates than any other individual. I utterly deny that our present system has failed to produce the right kind of Officer physically.

649. *Mr. Roby.* After the first 50 on any list, there may be among the successful men very many who are very little better in intellectual power than some of the unsuccessful candidates. Suppose, therefore, we passed the first 50 and then took the remainder of the list, with an equal number of the nearest unsuccessful candidates, and subjected them all to a physical test, giving marks for the best qualified, do you think that would be a good plan?—It might be a desirable thing.

649*a*. But would you consider that a man 6 feet high would make a better soldier than a man only 5 feet 4 inches high?—If you examine the returns of active service, *e.g.*, the Crimean War, you will find that it was the regiments of big men that suffered most. In many physical exercises you will find very often that the big men are not so good as the smaller men.

650. A man 5 feet 10 inches or 5 feet 11 inches high would be a better man for the Army than one only 5 feet 4 inches, would he not?—No, I do not think so.

651. But given a corresponding chest measurement?—No. There are many points in which a big man is more likely to fail than a moderate sized man. As a practical fact, it will be found, that the greatest proportion of first-rate football players are not very tall, certainly good gymnasts are rarely very big men. Generally excellence at athletics and medium height go together.

652. Then would you not be in favour of giving additional marks for increased chest measurement compared with height?—No, because provided a man can go through the fatigue of a campaign it is immaterial.

653 *Mr. Whitmore.* Can you think of any test which can be applied as a test of endurance?—With regard to the chest, it seems to me it is more a question of chest capacity than mere chest measurement; but apart from that, and putting aside the question of eyesight, I think a candidate ought to be able to walk 15 miles without hurting himself.

654. *Mr. Roby.* If there were a physical test, would you make it purely qualifying, and without additional marks?—Yes, because I can conceive of no system under which you could distribute the marks fairly.

655. Do you mean that you would distinctly not admit to the Army any persons who, say after two trials, had not the proper chest measurement, and who also were not found to possess the proper powers of endurance in those trials?—Yes, certainly.

656. *Lord F. Hervey.* Is not endurance in walking the result of practice?—Yes, and the effect of any regulation on that point would be that the boys would train up for it.

657. *Mr. MacNeill.* I understand from you that you do not know anything about the marking in the present literary examinations?—That is so.

658. Is it not the fact that one examiner has complete control over his subject, and that being so, do not you think the marks are affected by his idiosyncracies?—I believe so. My own opinion has always been that it would be better to follow the plan adopted at the Universities, where the fate of an individual candidate does not depend upon the idiosyncracy of a man. I would have two or three examiners for each paper. I would have every paper looked over (say) by A and B, who would no doubt agree in 99 cases out of every 100, but when they came to a paper in which there was a great discrepancy in the marking, then they should confer together. In the case of one man getting about 600 papers to mark, I do not see how you are going to insist upon him keeping up to the same standard all through. I think the British public have a right to know who the examiners are—their names should be at the head of every paper; and further than that, I think they have a right to ask for two examiners to every paper.

659. *Lord F. Hervey.* What would be the use of putting the names of the examiners at the head of the papers?—I think everyone has a right to criticise the examiners; there would be more confidence in the examiners if they were amenable to public opinion.

660. The responsibility for all these things rests with the Commissioners, and we should certainly not shirk that responsibility?—I am quite sure of that, but if the public do not know who the individual is, it is much harder to criticise.

661. *The Chairman.* Do you hold with having these examinations out of London?—No, the only way to keep the examinations absolutely pure is to have them at one centre only. I have asked the boys in what manner the examinations are conducted, and I find it is much easier to pass the preliminary at the centres out of London than it is to pass in London.

662. *Lord F. Hervey.* Do you mean to say that as a matter of fact, you have tested the results, and that you have found that a larger proportion of the pupils examined at the local centres have passed than in London?—I cannot say that.

663. Then why do you make the statement?—Because the boys have told me of certain things that have gone on at the local centres, and I do not hesitate to say, therefore, that it has been in the past easier to pass the preliminary examination at some of the local centres, where the number was small, than in London where it was large. For instance, dictation given to 12 boys in a small room is much easier than in a large room to 50 or 60. This applied to English dictation, and would apply to French or German dictation. Moreover, the examination of small numbers is more comfortable and, therefore, more favourable than when large numbers are present.

664. *General Sir W. O. Lennox.* Are not the examinations conducted by the same superintendents?—I think formerly they were more trusted to local people.

665. *Mr. MacNeill.* It has been stated that the establishment of (say) a court of examiners would be a matter of great expense; but ought expense, in your opinion, enter into this question at all?—No, I think not. I have pointed out that more money is got from the Woolwich and Sandhurst candidates than from any other examination; it would be perfectly easy to double the fee to-morrow, and that would cover the cost of having two examiners. I therefore cannot admit that expense ought to enter into the question at all.

666. *Mr. Whitmore.* I understand that, in framing your suggestions, you have been considering the best way of turning out good Officers?—Yes.

667. Have you thought at all of what subjects would be useful to the unsuccessful?—My proposed subjects would not militate against them.

668. But has the case of the unsuccessful entered into your consideration?—No, I have been looking only to the boys who are to pass; but all the subjects which I urge should be taken up would be much more useful to a boy not getting into the Army than any other subjects.

669. *The Chairman.* Are there any other points which you wish to bring before this Committee?—Yes, in the old days the lists used to be published showing the place of origin of the candidates, that is the place from whence they came, and I would suggest that that should be done in the future.

670. *Lord F. Hervey.* Would not that be rather misleading in the case of a boy who was six months at a private teacher's, after being six years in a school?—I would allow him to show both.

671. *Mr. Roby.* With regard to what you have said about putting the name of the examiner at the top of the paper, suppose a paper is drafted by one and revised by another?—Then put both names on.

672. Supposing after that the Civil Service Commissioners knocked out some of the questions?—The two would still remain the authors of the questions set.

673. But suppose the examiners wished to have alternative questions, and the Civil Service Commissioners in their alterations struck the alternative questions out, would it not then be rather deceptive to put the examiners' names at the top of the paper?—Yes, perhaps, if the Commissioners ever did so do. I am strongly of opinion that alternative questions should always be put as being fairer by eliminating chance as much as possible, *e.g.*, if 15 questions be set, full marks should be given for eight correctly done. We have had a good many changes of late years, and, speaking solely in the interest of the parents, I should like to say that whatever may now be settled, I hope it will be fairly permanent for some years.

[*The Witness withdrew.*]

Mr. H. Wolffram, *examined.*

(*See* also Appendix XII.)

674. *The Chairman.* You are a private tutor, I believe?—Yes, and I have been so engaged for many years.

675. Have you prepared many candidates for the Army examinations?—Yes, very nearly 1,000.

676. Have you any remarks to offer with regard to those examinations generally?—Yes. In the first place I should like to be allowed to hand in a scheme which I propose with regard to these examinations. [The same was handed in, *vide* Appendix No. XII.] The regulations respecting Army entrance examinations have for years been subject to frequent pertubations, to the dismay of parents and candidates alike, but the last two changes came upon them and the general public like an earthquake. The alterations made were a complete surrender on the part of the responsible authorities to the pressure of the public schools. The clock was put back to please the head-masters of these establishments. It would have redounded more to their credit if the authorities, instead of throwing a "sop to Cerberus," had insisted on the schools marching in harmony with the spirit of the times, as

the schools in Germany were forced to do sixty years ago, notwithstanding the head-masters were all up in arms at the time. For generations the public schools have pressed their pupils into the same groove of work, whether their natural bent lay in its direction or otherwise. Is it a matter of surprise if the "rank and file" imbibe rapidly a distate for all mental culture, make vicarious labour the rule rather than the exception, and turn fascinated, as the sunflower turns to the light, to athleticism as their soul-absorbing divinity? The Eton and Harrow match is the annual apotheosis of athleticism. How natural then for the majority of boys to aspire to the honour of being in the eleven, rather than at the head of the school! They develop into rollicking "Tom Browns," but how few of them are roused out of their mental torpor, by the gentle touch of a high-souled "George Arthur!" Having wasted their precious school years in an atmosphere of idleness the "rank and file" return to the paternal house empty-headed. The conscientious private tutor is the "George Arthur" to the "rank and file" of the public schools of England. Tom Brown, the idle, removed from the contagious atmosphere of idleness, is suddenly transplanted into the exhilarating atmosphere of mental activity, and his faculties, which had been lying fallow for years, come under the vigorous plough of the private tutor. Under this change of surroundings he unexpectedly develops powers with which he had never been credited either by former masters, schoolfellows or friends, who more often than not had regarded him as a hopeless blockhead. There are few private tutors who cannot vouch for numerous instances where boys from the lower forms of our public schools, after a judicious course of special training, have beaten their sixth form contemporaries in the competitive examination, and become their seniors in Her Majesty's Services. Many men, who now hold distinguished positions, were looked upon as "dunces" at school, simply because their latent talents had never been discovered until they entered the private tutor's establishment. Why should then the "rank and file" of the public schools, after having left school, whence they brought no knowledge of Latin, be cruelly handicapped by being compelled to take up a subject for examination which they hold in abhorrence? These unfortunate youths who, after spending years upon the subject at school, had given up Latin as hopeless, and had been working diligently at modern languages (which prior to the issue of the recent regulations held a commanding position, and properly so, among the subjects for examination), are by the alteration in the regulations absolutely crushed out of the competition at one swoop. I contend that in Army entrance examinations the widest scope should be given to all branches of knowledge, and every candidate aspiring to a commission, be he a classical scholar, a mathematician, a scientist, a modern linguist, or an historian, should have a free and fair field and no favour in the exercise of his intellectual faculties, and that he should do so will be to the advancement of the many-sided interests of the military profession. As to the obligatory subjects I contend that the only subjects that should be made obligatory are, elementary mathematics, geography, one language, either ancient or modern, the selection of which to be left to the discretion of the candidate, essay and geometrical drawing. With regard to elementary mathematics, the necessity of an early training in arithmetic and the elements of mathematics has been recognized by all nations, wherever there have been schools. But, at the same time, the facts must not be overlooked that mathematical reasoning is not the only cultivator of the pure reasoning power, and that all are not endowed with mathematical abilities, however otherwise gifted, and some are even incapable of making any appreciable progress in the subject, much less of obtaining a degree of proficiency which may be useful to them in their future career. It is obvious that for these an enforced prosecution of the study of mathematics is a hardship and a waste of time, which time they might have profitably employed in the pursuit of other branches of knowledge more congenial to their natural aptitudes. For Woolwich, of course, a standard of mathematical acquirements must necessarily be insisted upon. I pass now to the next subject that I contend should be made obligatory, viz., geography. The importance of this subject is so well recognized abroad that in Germany for many years, and in France since 1870, a very prominent place in the examinations of Army students has been assigned to geography. There was no more enthusiastic advocate for the study of geography than Herder, the author of "Der Philosophie der Geschichte der Menschheit." He knew of no study that tended more to widen our mental and moral horizon, to enrich, ennoble and elevate the human mind than that of geography. The knowledge of this subject (which in this country, that sends its sons into every quarter of the globe, has been hitherto almost entirely, it might be said culpably, neglected) has made astounding strides in Germany, where it is fast becoming a formidable weapon to be wielded in the industrial contest of nations to the detriment of her rivals. Surely the time has come when the military authorities of this country should see their way to assign to geography a prominent place in the new curriculum, and insist on its being made an obligatory subject. Next, as to the language which is to form part of the obligatory subjects, I reiterate my previous conclusion that compulsion in the selection of the subject is a manifest injustice, and that therefore every candidate should be allowed to make his own choice among the languages enumerated in Class II.

677. *Mr. Roby.* Your mathematics are very low?—The low standard of obligatory mathematics applies solely to Sandhurst candidates, *i.e.*, candidates for the Infantry and Cavalry; but I insist upon a high obligatory mathematical standard for Woolwich candidates, *i.e.*, candidates for the Artillery and Engineers.

678. I see high marks for geography, but is not that a difficult subject to examine in, so as to test real work?—It is not found to be so in Germany, where the study of geography has made enormous strides of late years.

679. What do you mean by geography?—In geography I include descriptive, physical and political geography. Hitherto the study of geography has been pursued in a very incomplete manner.

680. In giving these very high marks to geography, are you thinking of what would be of use to an Officer afterwards?—Yes.

681. Rather than what would be best for pupils coming up for examination?—That would be a groundwork for those who have taken up the subject and passed in it; they would naturally continue their studies in the same subject.

682. Would you seek to react upon the schools by means of the examinations?—Yes.

683. It would be a long time, would it not, before geography occupied the amount of attention in the school which you wish it should have?—Yes, but pressure must be put upon them, and if the subject is once established they will very soon find the proper tuition for it. It was found to be so in Germany.

684. I see by your proposals that you do not require positively more than one language?—No, not necessarily.

685. And a boy could get through with a little French or a little German?—Yes, I had a boy extremely well up in science. He could take up and pass well in three sciences, showing a careful knowledge of each of them. Why should not such a boy as that have an opportunity of entering the Army?

686. Could he have done the other subjects well?—No. Strange to say, he had no aptitude or taste for mathematics.

687. Would not that tend to show that you should give a large choice in the subjects you absolutely require?—Yes, that is just what I endeavour to do in the scheme I propose; and it is also a reason why I

propose that the obligatory mathematics required for Sandhurst should be very elementary?

688. Could your scientific boy have done those?—Yes, certainly.

689. *Lord F. Hervey.* Are not your obligatory mathematics the same as those of the old preliminary examinations?—Yes, for Sandhurst candidates.

690. *The Chairman.* Would you say that there should be a minimum, which must be obtained in all those five obligatory subjects?—Only in the aggregate. With regard to languages, I may say that in the last two examinations questions have been introduced on history and literature which results in the merest cram. I know for a fact that these questions lead only to getting up the names of, say, French or German authors, and the learning of some dates, but that does not show a knowledge of language; I have therefore apportioned my marks differently. I think a man shows a profitable knowledge of language only when he can translate from that language into English, and also from English into the other language, and can converse in the language. The marks for the colloquial have been reduced by recent regulations to a merely nominal number, with the result that many men who have a considerable colloquial knowledge never get a proper number of marks for it. I think the marks should be divided as I have stated them, and I know, from my long experience, that they show fairly the practical knowledge a man has of a language.

691. *Mr. Roby.* Do not you think a great deal of cram would go on with regard to geography?—Perhaps so. I attach a good number of marks to it in order to encourage the study of it (which has been so much neglected in this country), and for this reason I have made the subject equal in value to the other subjects in Class II.

692. Would you admit that a man might be crammed in geography the same as in history and literature?—I should give very few marks for mere cramming up a few names of places. I should examine very differently in geography.

693. *Lord F. Hervey.* Have you a specimen of a paper such as you would like to see set in geography?—I will prepare one for you, if you wish it.*

694. *Mr. Hunter.* Say we take the case of Chili, would you, under the heading "Geography," expect a man to know the population, the resources, the form of government, and the strength of the army and navy?—Yes, certainly. He should know the natural conditions and physical features of the place, and the influence of climate on the food-producing districts of the country, and be able to state what districts are capable of colonization and civilization.

695. Will you supply us with some of the examination papers set in Germany?—I will endeavour to do so *

696. *Mr. MacNeill.* Do you think that any boy could, after a mere cramming process, draw a map and give the leading outlines of a country?—In teaching geography I have always put every map on the black board; first the outlines, and then the other particulars were filled in, the pupils copying it at the same time. In fact, I have no books; all the teaching is done by means of lectures and the black board, and with us geography has been very good.

697. The question, "Give the boundaries of such-and-such a state" is one that is frequently set in geography; would not the boy who had studied the thing give the east and west correctly in answer to that?—Yes.

698. Whereas the boy who was simply crammed might put the east for the west and the north for the south?—Yes.

699. *The Chairman.* In your obligatory subjects you give essay 500 marks?—Yes; that is a test for spelling and writing properly, with very little value attaching to the composition as such.

700. *Lord F. Hervey.* Do you exclude dictation?—Yes, I put the essay as a substitute for dictation.

701. *Mr. MacNeill.* With reference to the capability of cramming literature, could there not be some papers set (say) in a play of Shakespeare, or on some passages from Chaucer, by which the tendency to cram could be destroyed?—Certainly; literature has for some time been excluded from the Army examinations. I should be almost inclined to have history made an obligatory subject. I was on the point of including it in my proposals, only I thought I should be going perhaps too far. Practically, history and geography always go together.

702. *The Chairman.* Do not you think modern languages might have a more prominent place in your list of obligatory subjects, because it is quite possible for a boy to go through without any modern language?—Perhaps so, but why should a boy, who is good at mathematics or science, not get the full value for his intellectual attainments, the same as a boy who likes languages? The scientist and mathematician would be just as good for the Army. I do not think a scientist should be obliged to take up any more languages than the obligatory one, a linguist is allowed to have three if he wants them.

703. Do many of your boys study science?—Yes. At the examination last December, one of my pupils got over 1,100 marks for physics, the very pupil who had no aptitude for mathematics.

704. *Mr. MacNeill.* Have you, in your own experience, known extremely clever boys, who were absolutely incapable in regard to mathematics, having a gap in their mind, as it were?—Yes, the boy who got the 1,100 marks at physics was like that, curiously enough, he would never be taught mathematics, although in the practical parts of physics he could beat all the other boys. I think it would be a waste of time for such boys to go on with mathematics. Of course, if a thing is made obligatory, we must teach it.

705. *Mr. Hunter.* Why should you restrict the number of the optional subjects?—If you allow any number of subjects, you will get only a smattering of knowledge.

706. Supposing it were said that a candidate should not count the first 20 per cent. of the marks gained in any subject?—20 per cent. would hardly represent any useful knowledge; I should say 30 per cent.

707. Would not such a plan make it unprofitable to take up a multiplicity of subjects?—Yes.

708. *Mr. Roby.* Do you think, from your point of view, that if you struck off a minimum of marks it would be tolerably safe?—Yes; but, on the other hand, you would do almost the same thing by limiting the number of subjects, and besides that, would be a guide to the students. I think I would prefer the limiting plan.

709. Is that rather because you want to direct the student?—Yes, I want to prevent a waste of time.

710. There is not very much direction if you say three subjects out of all this list?—I think you must put a good number of modern languages, so as to meet the case of those boys who, from residence, or from the nationality of their parents, have acquired a good knowledge of their subject.

711. You say you want to direct the student; do you think you are effectively directing him when you leave him the choice between chemistry, physics, and geology, or Latin, French, and Russian?—He cannot take up more than three, and if he is perfectly ignorant, I guide him, and tell him what to take up.

712. Could not you do that if you said you cannot get enough marks in five subjects, you had better confine yourself to three?—Yes.

713. *Lord F. Hervey.* Is not Italian a very much easier language to learn up to a certain point than German?—Yes.

714. If it were a mere matter of marks you would

* The Witness subsequently informed the Secretary that owing to severe illness he had been unable to prepare a paper and that a specimen paper could not be procured from Germany. He explained also that a cadet is put through various courses of instruction in geography, commencing with the geography of the State in which the Krieg Schule is situated, *e.g.*, Bavaria, and continuing with that of Germany, Europe, and the world. Throughout their career German Officers never discontinue the study of geography.

advise a boy to take up Italian instead of German, would you not, as being much easier to obtain a mastery of?—Yes.

715. Then if the course recommended were pursued the result would be that you would drive the students away from learning German?—If a student had been studying German for some time I should not recommend him to study Italian in preference to German.

716. *Mr. Roby.* Where do your students chiefly come from?—The public schools; but I have some from private schools.

717. Would those private schools be absolutely private, the property of the person conducting them?—Yes.

718. Are those boys often successful?—Yes.

719. How long would they be with you as a rule?—Some a year, some two years.

720. *The Chairman.* Do you attach any importance to a physical test for these examinations?—No. I have taught and lived with Army students for upwards of 30 years, and I must candidly say I have noticed no signs of a decadence in the physique of the youths who have been under my care all these long years. The vast majority of them now, as ever, take to physical exercise as naturally as a duck takes to the water. Though I am glad to see my pupils take up healthy games, and I do encourage gymnastics on Saturday nights at The Manor House, a not inconsiderable part of my duties consists in restraining their ardour and devotion to them, lest they would become an excitement and a rival to their work. There are some amongst them who, imbued with a praiseworthy sense of duty to their parents and themselves, practise self-denial in refraining for a time from all games, in order to devote their whole time to study. Amongst these are sometimes apparently delicate lads, and I fear the advocates of a physical energy competition would probably condemn them in blind haste. But what has been my experience as to those lads? Why, many of them have distinguished themselves in active service by their powers of endurance, their readiness of resource, and rare presence of mind. They have afforded me many agreeable surprises, and their number is the measure of my conviction that the introduction of physique as a subject of examination, carrying marks, would prove not only an act of great injustice to many lads, but would entail a serious loss to the Service. Besides, the practical application of such a measure bristles with innumerable difficulties. Physical energy exerts itself in so many channels, which will all clamour for a recognition of their rival claims. It has been suggested that the muscles of the arms and legs should be measured for the purpose, I suppose, of attaching a certain number of marks to every square inch of muscle! But surely such a test is not a proof of organic strength. Medical science tells us that this abnormal development of muscle is achieved at the expense of vital force. It was stated the other day that the muscle showman, Sampson, had fainted in court! I am convinced that the carrying into effect a physical energy examination would lead to confusion worse confounded.

721. *Mr. Roby.* How many pupils have you at a time?—At the present moment I have 33 for Woolwich and Sandhurst, and about the same number from the Militia.

722. Do you make any accurate observations of the boys from time to time?—I see them daily in their games and exercises, and consequently am able to form a very accurate estimate of their physical capabilities.

723. *The Chairman.* Is there any physical test for the army in Germany?—Nothing beyond a medical test similar to what we have here.

724. *Mr. Roby.* Is the standard of that medical examination high, or is it simply to say that a candidate is free from organic defects?—I cannot speak with certainty on that point.

725. *Lord F. Hervey.* Is there any qualifying test in Germany with regard to eyesight?—Yes, but the candidates are allowed to wear glasses.

726. *The Chairman.* What is the object of the test, then?—To find out those whose sight is weak; a short sight is very often a strong sight.

727. *Lord F. Hervey.* Supposing a student were very distinguished in mathematics and Latin and geography, but very deficient in capacity to judge one colour from another, would he be passed in Germany?—I think not.

728. Take the case of two candidates who were very nearly even in regard to intellectual merit, as shown by the examination, would any advantage be given to the one who was the physically superior?—None whatever.

729. *Mr. Roby.* Do you think it desirable to attach any weight to that?—No.

730. If he were physically superior, would he not be the better man for the Army?—Provided a man is sound in all respects, has a good constitution, and is physically energetic, it is difficult to say what is the physical superiority which would render another man a better man for the Army.

731. Supposing an examiner comes to the conclusion that one is distinctly superior physically to the other, do not you think it would be proper to take account of that, and say whether A or B should enter the Army?—They do not do that in Germany.

732. *The Chairman.* Is there any test in Germany in walking?—The boys do their drill in the schools.

733. At what age do they go to those schools?—They enter the junior schools between 10 and 11.

734. Have you selected your subjects from the German examinations?—No, because in the German colleges the students are tested from class to class; a boy must qualify for a higher class before he can leave the lower.

735. *Mr. Roby.* Do the Officers get into the Army by competition at all?—No, there is no competition for that, that is done by qualification.

736. But supposing 12 qualified and only 6 were wanted, what would they do in that case?—The number of entries into the schools would, I presume, be limited by the number of Officers required for the Army.

737. But suppose there are 150 for the 100 places, how is the matter arranged then?—A man has to pass the test in every subject, and that test varies according to the number of commissions to be given.

738. Then practically there is always a commission ready for anyone who passes the test?—Yes.

739. Is the test raised from time to time, according to the supply?—No; those who pass the highest standard go into the Engineers and the Artillery, and the rest into the Infantry and Cavalry.

740. *Mr. MacNeill.* Have you formed any opinion as to the propriety, or otherwise, of one examiner controlling each subject of the examination?—I should decidedly prefer to have two men setting each paper, or looking over the paper independently.

741. And in the case of a difference between them in regard to the marking of any subject, should they not meet and confer with one another?—Yes, I think so.

742. Do you think the benefit of such a course should be overbalanced by the consideration of expense?—Of course, the expense would be greater; but I think the fees should be raised: it would be for the benefit of the country.

743. Do you think the examiner should be anonymous?—I think the names of the authors of the papers should not be known.

744. Why?—There is no necessity.

745. How are the public to judge? The examiner is examining the candidate, but who is examining the examiner?—The Civil Service Commissioners are responsible for all that. In Germany the Educational Council appoint the examiners, and these have all been teachers, often for a length of time: and I maintain that no man can examine who has not been a teacher.

746. Have you ever heard of examiners examining their own pupils?—I have heard of that.

747. *Lord F. Hervey.* Where, in Germany?—No, here, in this country.

748. In what circumstances?—A good many years ago a French master was an examiner, and he had private pupils; but I attach no importance to such reports.

749. That was a good many years ago was it not?—I think it was 20 years ago, quite.

750. *Mr. MacNeill.* Would not the publication of these pundits' names, by bringing the force of public opinion to bear upon the examiner, have the effect of preventing an examiner from examining his own pupils?—Perhaps the force of public opinion would be a good thing.

751. *Lord F. Hervey.* Are you aware that the examiners know nothing of the examinee except by the number upon the paper?—Yes.

752. He could not therefore, could he, give any advantage to his own pupils?—No.

753. *Mr. Hunter.* Have you, in your own experience, had many unaccountable results in the examinations; have bad men succeeded where good men have failed?—No, but I have known cases where pupils have got higher marks than others who were superior to themselves, and I have accounted for that in this way: One writes very clearly, and he can concentrate his knowledge better than the other man, who, though he has more knowledge, is slovenly in his work, and is in consequence perhaps several hundreds of marks below the other man.

754. The difference in that case is no fault of the examination, is it?—No.

755. *The Chairman.* Would you take off marks for bad spelling?—I think I should make a slight reduction there, especially in the case of history.

756. *Mr. Roby.* Do you find that your pupils show many faults in regard to spelling?—Yes.

757. *Mr. Hunter.* Would not that show that their education had been very much neglected?—Yes, I think so.

758. *Mr. MacNeill.* Supposing the matter of a paper to be good, and supposing the orthography is reasonably correct, is an examiner justified, on account of slovenly writing, which he has some trouble in reading, to punish a boy by deducting marks; is he not well paid for what he does?—He ought not to deduct marks for that, but I fear that it is frequently done.

759. In Germany, is there more than one examiner for each paper?—I think each paper is always looked over by two men.

760. *General Sir W. O. Lennox.* Looking at your proposals, I see that for Woolwich you increase the course, but you do not increase the marks?—I think it is sufficient to give 2,000 marks for that, because anyone who has gone through the first course will go through the second one with greater ease.

761. *Mr. MacNeill.* In arranging your proposed syllabus, have you taken into consideration how far the subjects would be valuable to those who did not get into the Army, or have you arranged it simply with a view to their passing?—I think such an education would fit them for other occupations in life

[*The Witness withdrew.*]

TUESDAY, 21ST NOVEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Mr. L. L. MORIARTY, *examined.*

762. *The Chairman.* You are one of the masters in the school at Harrow, I believe?—Yes.

763. For how long have you been in that position?—Five years. Help has been given to boys going in for the Army for a long time past, but a regular class for that purpose has existed only since 1890.

764. When do the boys make up their minds to join the Army class?—They enter the school at 13 or 14 at the latest, and they generally make up their minds some time afterwards.

765. Do the authorities of the school exercise any judgment as to whether a boy is likely to become fit for the Army?—They generally follow the parent's wishes. A boy selecting the Army formerly worked on in the ordinary forms with a little extra help, and then, when he had passed the preliminary, he came over to us altogether; but the preliminary has now been abolished. Now, when a boy has reached the modern remove, which is the highest form in the lower school, he has a right to join us if his parents so desire it.

766. *General Sir W. O. Lennox.* At what age would that be?—Generally 15 or 16, at the latest; but sometimes a boy will make up his mind suddenly even after that age.

767. *The Chairman.* Is the Army class the same as the modern side?—No.

768. What is the modern side?—That is intended

mainly for boys who are not going to the Universities, and who are also not taking up any special line; they get a general education of a high character, but the pressure to work is perhaps not so great with them as with us.

769. Do they take up Latin?—Yes, but they set aside Greek.

770. Is there good mathematical tuition on the modern side?—Yes.

771. May we take it that you try to combine the advantages of a crammer with the advantages of a public school?—I cannot say that we do much "cramming" in the usual sense of the word; we rather teach the same as the other parts of the school, only our teaching is much more concentrated; in fact, we teach on much the same lines as the other parts of the school, only we have seldom more than eight or nine boys in a class, whereas on the classical side of the school they may have as many as 34 or 35.

772. How many boys have you in the Army class altogether?—About 70, of whom 34 are entirely with us in the special classes, while the remainder are only getting help in various subjects. The great advantage we have over the classical or modern side is that we can allot our time so much better than they can with a view to the Army examinations; on the modern side a boy gets only 1½ hours in history, whereas we give him 6½ hours.

773. Then I presume that generally the boys in the Army class have greater advantages than the boys in the general school, because they have much more attention paid to them?—Yes; and some boys have begged to be kept in it, although they are not going into the Army.

774. *Mr. Roby.* Is there any extra fee attached to that class?—Yes, I think it is generally about six guineas a term; we have a good many extra masters, and therefore the extra fee is a necessity, but I have not heard that any parents have complained in regard to that.

775. *The Chairman.* Do you agree with the present standard of age for these examinations?—Yes, the reduction of the age for Sandhurst from 20 to 19 I consider to be a very good thing; it enables us to send boys up straight from the school, a thing we could not often do formerly, because we do not keep them beyond the age of 19. That has been a very valuable change, and I should be sorry to see the age reduced to the same limit as Woolwich, because now a boy may go up for Woolwich and only just fail, and still have a chance for Sandhurst. In fact they now get two tries for Sandhurst after their last failure for Woolwich.

776. *Lord F. Hervey.* Would it, in your opinion, be an injury to some extent if the age to Woolwich were raised to the same as for Sandhurst?—Yes, I think it would, because it would prevent the boys having that chance for Sandhurst which they now have; I have had boys who failed three times for Woolwich and then got into Sandhurst.

777. *The Chairman.* At present the obligatory subjects are mathematics, Latin, one modern language, and English; do you agree with those?—Yes. My mathematical colleague has impressed upon me very strongly that in regard to Sandhurst three mathematical papers would be better than two. At present they have trigonometry and Euclid in one paper, and he maintains—with some reason, I think—that both subjects deserve separate treatment; they are neither of them adequately treated in one paper; and further than that, he thinks, in regard to Euclid, they do not get enough riders.

778. *Mr. Roby.* Have you the general control of the Army class?—Yes, with a mathematical colleague, under the head-master, and I am assisted by four or five other masters. I teach the Army boys everything except mathematics and science. We have a special master for physics.

779. *The Chairman.* How many subjects ought to be made obligatory, do you think the present four are enough?—To begin with, I think mathematics and one modern language ought to be made obligatory; Latin I think is fair as the usual basis of public school teaching, though it is very hard on some of the mathematical boys.

780. *Mr. Roby.* How do you think the boys would like, as an alternative, Latin or German?—Some certainly would. At present German is, to a great extent, taken as an alternative to Greek. English has lately been made an obligatory subject, but I think if too great stress is laid upon spelliug, it will result in some hardship, and I think also if dictations are to be set it will make the standard a little fanciful.

781. *The Chairman.* Would you say that when a boy has done a good paper marks ought not to be deducted if he has made some mistakes in spelling, as they do not belong to the subject at all?—Yes. 1,000 marks are to be given in June for English composition, but I think that is very much over-marking it. It is a very difficult subject to teach, but having regard to the amount of time usually spent on it, and comparing it with geometrical drawing, which is also marked at 1,000 marks, I think English is marked out of all proportion. A certain number of boys are gifted with a fluent style and can spell, which enables them to do the English work without much effort.

782. *Mr. Roby.* Do you not think that is rather because more stress is now laid upon English in the schools?—Possibly, we are able to give only a little more time to it now than we did.

783. But surely to be able to work sensibly is a good thing?—Yes, but the effort generally involved in learning to write an English essay is so much less than the effort required for the other subjects, that I think it will be over-marked.

784. Even if the paper is made more difficult?—How can it be made more difficult? You ask a boy to write upon a certain subject, and the boy writes a certain number of pages.

785. *Lord F. Hervey.* I presume you understand that under the head of English composition it is intended to group handwriting and spelling?—Yes, I always understood it to include handwriting, punctuation and style, but even then I think it will be too highly marked. I think a subject should be marked more with regard to the amount of effort a boy spends on it.

786. *The Chairman.* Are you opposed to making English obligatory?—No, not if it is kept to 500 marks. I think all boys ought to be able to write English, and practically every one takes it up now.

787. *Mr. Roby.* A gentleman writing on the subject of English composition suggests, "There should be three papers: first, an English essay, a choice of three subjects being given; second, a pamphlet speech, or article, should be given to the candidates for review. This is an admirable form of examination which makes cram impossible. Third, a general paper, such as is set in the ordinary scholarship examinations." Do you agree to that?—I think that will make the subject rather too difficult, besides which all literature questions tend to cram.

788. What about the review of the pamphlet speech or article?—That is a fairly sensible suggestion, and I do not see any harm in it, but I still think 500 marks an adequate total for English.

789. Some people suggest it should have 2,000 marks?—Then it would probably develop into pure cram.

790. *The Chairman.* Do you think these five are the right subjects for the obligatory?—Yes, I think geometrical drawing ought to be obligatory. I am very glad it is now marked 1,000, for I think that is quite right.

791. A large number of people would like to see a modern language substituted for Latin, do you agree to that?—No, I think Latin at present is an essential part of a gentleman's education, and you want gentlemen in the English Army. I think it would be the best thing to leave it obligatory, although many boys suffer from it.

792. *Mr. Roby.* If they suffer what is their line generally?—They vary very much, one boy is best in mathematics and he makes the bulk of his marks in that and so makes up for the others. I think the Army examination, as it was in December, 1891, was a most admirable test of a common sense education, but with regard to modern languages, I think it has been altered for the worse.

793. *The Chairman.* In what way has it been altered for the worse?—I object to the fairly recent alteration in French and German. The examination used to be French into English and English into French at sight, dictation, and a colloquial exercise which was marked 400 marks. The change of which I complain has reduced the colloquial from 400 to 200 marks; questions have also been set in history, and in literature, and passages have been generally chosen from the writers of the 17th century, such as Racine and Corneille. I object to that all round. I think the education that the Army wants is one suited to enable an Officer to speak French or German so as to be able to ask a peasant where the next bridge over the river is, and such things as that, in fact the requirements of the Army are mainly colloquial French and German. The history and literature are pure cram.

794. *Mr. Roby.* Would you lay stress upon the power to translate one way or the other?—Yes, except perhaps in Latin; what the Army wants is men with a practical knowledge of modern languages, and I always send my boys abroad, if possible, for a few weeks to get up a knowledge of the colloquial part of the language. I would abolish the literature and history questions, and I would insist upon French or German being thoroughly well known. I should like also to add 400 marks for colloquial to the existing 2,000 marks, making a total of 2,400 marks. I think if the present number of marks for mathematics is raised, French and German will be undermarked.

795. If for the colloquial examination only 10 minutes can be given for each candidate, is not 400 too high a figure for the marks?—That is a difficulty, but I think it might be partly met by writing a dialogue. I do not think 400 is too high a figure, and as to the time, an examiner can in a minute always tell what sort of knowledge the man he has in front of him possesses. If a candidate gets high marks in this it shows that he is the sort of man the Army wants.

796. *Lord F. Hervey.* But some boys may be shy, and if they come across an examiner whom they have not seen before, they may not be at their ease?—I have never found boys very shy, though they are sometimes silent, because they do not understand what the examiner says.

797. *Mr. Roby.* Are French and German taught in your school by natives or by Englishmen?—By both. I teach a good deal of the French in the Army class. I was born and brought up in France, and so I speak French about the same as English, German, perhaps, not so fluently. I am assisted in both those languages by native Frenchmen and Germans.

798. Would it be any relief to your boys if we said "Latin or physics"?—I think not; I think rather the other way, because every boy starts Latin quite young, whereas physics would not be begun till very much later on. I was speaking to Mr. Welldon this morning, with regard to Greek, and we were both of the same opinion that it seemed as if the Army wished to discourage Greek by the low marks they give. Greek is taken up later than Latin, it is harder, and the ordinary boy never reaches the same standard in Greek as in Latin, consequently when he goes up for the Army his Latin is no better relatively than his Greek, but he gets, perhaps, 1,300 or 1,400 marks for Latin, and only about 800 for Greek. Personally, I should not care if Greek disappeared altogether from the list of subjects. In the case of boys coming to the Army class from the classical side, if their Greek is not very good, I make them change it, and take up German. I have only four boys out of my 34 who are doing Greek, and the only reason of that is that in the six months they have at their disposal they have not time to learn German. I encourage German, and also English history, although it is marked so low.

799. *Lord F. Hervey.* How is it marked low?—It is a very difficult subject to master, and they do not get many marks for it.

800. *Mr. Whitmore.* Do you think more marks should be given for it?—No, I think the boys should have a better knowledge of the subject. I think the papers are fair and good; the chief difficulty lies in finding time to do the subject thoroughly in school.

801. *Mr. MacNeill.* Several gentlemen who have given evidence before this Committee have spoken against English history, saying that it is a subject easily crammed, is that your opinion?—I do not agree with that; it is not easily crammed, that you can see by the marks obtained. To get high marks a boy must know it thoroughly.

802. *The Chairman.* It is generally accepted that mathematics ought to be an obligatory subject, suppose we agreed to that with a certain minimum which must be obtained, and then took all the other subjects in the three classes, giving them equal marks, and saying to the candidates, "You may take up any five subjects out of the 10"?—That would be reverting to the old system, when they were all optional, even mathematics.

803. Why was a change made?—I cannot say. Three years ago for Sandhurst there were four optional subjects, instead of five, with 3,000 marks each. I remember very well the case of a boy who passed very highly in French and German, but he did not know mathematics; that boy would stand a poor chance under the present system,

804. Would it not have been somewhat of a loss to the Army if he had been excluded?—Yes, I think so.

805. *Mr. MacNeill.* Have you known clever boys, and boys with moderate attainments, who have been entirely incapable of learning mathematics?—Yes, certainly, and they have failed even for Sandhurst.

806. On account of mathematics being obligatory?—Yes. Of course for Sandhurst mathematics are not so important as for Woolwich.

807. Do you agree to having special history subjects; that is to say, that boys should prepare from a certain date, and that certain books should be recommended?—I think it is right to have a special period as well as the general paper on English history, but I would not recommend special books.

808. *Mr. Roby.* Suppose some such plan as the Chairman has suggested were adopted, should you be disposed to mark all the voluntary subjects the same?—Yes, I think so. It is rather a question for the Army requirements, and if languages are so very valuable for the Army, they might be marked a little more.

809. *The Chairman.* If you do not mark them all the same, you get into this difficulty, do you not, that all the lower marked subjects would be excluded?—Yes, that would be so unless they were made obligatory.

810. *Mr. Roby.* Would you be inclined to give the same number of marks to each subject?—No. Perhaps I might suggest the following scheme:—To divide the subjects into two classes—I. Obligatory (with no plucking minimum) mathematics, 3,000; Latin, 2,000; French or German, 2,400; geometrical drawing, 1,000; English essay, 500; geography, 500; freehand drawing, 500. II. Optional subjects—the same as at present, with the same marks—any two to be taken up.

811. *The Chairman.* It is generally accepted that you must have mathematics, beyond that I suggest that all the rest of the subjects should be marked the same, the candidates being told that they might take up which they liked. The result of that would be, would it not, that those who attach so much

weight to science would have an equal chance with those brought up in classics?—Yes, but I would not mark English 2,000, nor freehand drawing 2,000. I say, leave English at 500, and geometrical drawing at 1,000.

812. *Mr. Whitmore.* Would not that result in their not being taken up at all?—I think if you said, "you can take them up if you like," they would all be taken up; or they might be made obligatory.

813. *Mr. Roby.* Are you in favour of saying that a boy who does not get at least half marks in mathematics, shall not go in at all?—That is necessary for Woolwich, but I think it would be too high a standard for Sandhurst

814. *Mr. MacNeill.* If there were an obligatory minimum, would it not be better to have a preliminary examination, say six months, before the ordinary examination?—The preliminary has been abolished much to my regret.

815. Is it your experience that boys, intellectually speaking, have either a classical and linguistic, or scientific tendency, and if that is so, have you any plan in your mind whereby boys of fair intelligence would be able to get the same chances at the Army examination?—I think they have that at present, because where one is good at one thing, another is good at another, and both are probably equally bad at an equivalent number of things.

816. Is there any classification of marks which would bear out that idea?—I think it would be difficult to do more than is done at the present time; every boy is better at his work at one time than he is at another, that is only natural.

817. *Lord F. Hervey.* With regard to the marking of Class II., you see that at present every subject has the same maximum number of marks, are you aware that that plan was deliberately adopted because of the breakdown of the previous system which was this: Candidates were told that they might take up so many subjects, and about the same number of subjects had very high maximum marks; they were also told that they might take up certain other subjects which had much lower marks. The profession of offering them a choice was really a profession and nothing more?—Yes, that is so.

818. Then may we not assume two things, firstly, that the highest marks will draw the most candidates, and secondly, with respect to the difficulty of the subject that the candidates will take the line of least resistance?—Yes.

819. Is not that the reason why English history is taken up so generally?—No, I think not, boys take up English history because they do not know what to take up for the fifth subject, five subjects are rather a large demand, and if they have no scientific head, there is nothing else left for them.

820. *Mr. Roby.* On the whole, do you approve of the English history papers?—Yes, but to get good marks in them, a boy must be very good indeed.

821. Would you be in favour of cutting off altogether the earlier periods of history, and start, say, from about Henry VIII.'s reign?—No, I think it is a bad thing to study history in bits, a boy ought to have a general knowledge of the whole subject, and above that a more minute knowledge of some particular period.

822. Do you not think that the last 300 or 400 years form the most important period?—Our boys are now doing the whole of English history *plus* the times of Anne, George I. and George II.

823. Would you add European history?—I think the present is as much as they can do. They might have lectures on European history at Woolwich or Sandhurst.

824. Do you think that a knowledge of the Heptarchy and the Plantagenets is more important to a boy than a knowledge of European history?—No, I do not; but he ought to know the history of his own country first.

825. *Mr. Whitmore.* I gather that you attach importance to the continuity of history?—Yes, that is so; the knowledge of European history that a boy would get at school would be very scanty, and it would probably be all cram. These Army boys are not the cleverest boys in the school, they are boys with only moderate acquirements and intellectual power.

826. *Mr. Roby.* Might not the history be divided into blocks, say, one German and another French?—I think that would make their knowledge very scrappy.

827. *Mr. MacNeill.* In your opinion would it not be advisable that there should be two examiners for each paper?—That is a detail of administrative arrangement. I do not think it would matter to me whether there was only one or more than one.

828. But with two or three hundred papers to do a man would get very tired before he got to the end, would he not?—That is a risk which attaches to all competitive examinations. The papers might be revised.

829. *The Chairman.* A question has been raised with regard to a physical examination; do you think that that would be of any practical use?—No, I do not, and I spoke to Mr. Welldon this morning, and he did not think so either. An examination of that kind would be a very difficult thing to mark. If marks were given for gymnastic skill, it would be a good thing for the boy living near a gymnasium, but not for a boy living at some distance from it. I think that if there were an examination in gymnastics it would only add another subject which the boys would cram up for.

830. Do you think that the regular sort of training a boy gets at football or cricket does produce a certain amount of physical development?—Yes, I think so. The men who have done great deeds in the Army have not been gigantic men, they have been men of only ordinary development.

831. *Mr. Roby.* Leaving out the question of muscular strength, and supposing you want constitutional strength, have you thought over any system of measurement for which you could give marks, say, size round the chest in proportion to height?—The medical men can reject all those who do not come up to a proper standard in that respect, but I would not give a boy marks for that over which he has no control.

832. Would you approve of a system by which, say the last 40 or 50 successful candidates, and the same number of the unsuccessful candidates should be put together and the physically best selected?—I think that would be very unfair to the boy who has just passed.

833. But he would only be just a little in front of the others?—Still he would be in front.

834. Supposing we took the first 60 or 80, and said that those were successful, and that so many of the remainder would be subjected to a physical test?—I think that would lead to a very great outcry.

835. Supposing it were done, would it not tend to the selection of the most useful men for the Army?—I think the doctors can see to that now. It seems to me that what the Army would like to test would be a man's power of decision, and his capacity for meeting emergencies, and yet I do not see how that is to be tested.

836. *The Chairman.* Have you exercised any observation on the boys coming up for the Army?—Yes.

837. Is the type of boy coming up now pretty much the same as before?—Yes, I think they are mostly the sons of military men; I cannot say that I observe any difference in the matter of physique. The Army class is generally very strong in football; I think we get the ordinary proportion of strong, healthy boys.

838. *Mr. Whitmore.* Do you in any way interfere with a parent's choice of profession, would you interfere in the case of an obviously sickly boy?—Yes, I have stopped certain boys because they were too short; they were about 16 or 17, and only 5 feet

high, and there was no chance of their reaching the standard. Such a case as that does not often happen, but there is a chance of it.

839, *Lieut.-General Sir R. Gipps.* What is your opinion with reference to giving marks for riding?—I think that would be putting a premium upon the rich boy.

840. But you are very strong for colloquial French and German, and that is equally putting a premium upon the rich boy?—I think not, besides we can teach enough colloquial French and German ourselves.

841. *The Chairman.* Is it not a fact that in many parts of France people can live more cheaply than in England?—Yes, certainly.

842. And might not that induce a half-pay Officer to live there?—Yes, I have known quite poor boys going abroad for languages.

843. *Lord F. Hervey.* Would your objections be removed if some five or six tests were devised for the physical examination, and we left it to the candidate to choose for himself?—I do not think a physical test is at all necessary beyond the regular medical examination, which can be made as stringent as is desired; I object to it *in toto*; it would always be very difficult to mark the boys even relatively in such things as gymnastic exercise.

844. But that is very much the same thing that we have to do in assigning marks for the subjects in Class II.?—Yes, but the amount of time devoted to those subjects is very much the same.

845. *The Chairman.* Do you think that putting the shot would be a good test?—I think it would be a good enough thing in its way, but I fail to see any imperative necessity for bringing it in.

846. Suppose we took running, 100 yards or a mile, would not that tend to put a very great strain on all the boys?—Yes, because all boys are not equally well able to run.

847. *Lord F. Hervey.* All boys fit to go into Sandhurst, between 17 and 19, ought to be able to run a mile?—Yes; but I think if you said that was to be done it would be treated as an ordinary subject, and they would train for it, if they had to do it in a certain time.

848. *Mr. Roby.* Do the boys generally do a lot of work in the football and cricket field?—Certainly; the Army boys join, like other boys, in all the school games.

849. Do the cricket and football boys give much attention to gymnastics?—No, not as a rule.

850. *Mr. Whitmore.* Does skill in the gymnasium give a boy any special prestige in the school, the same as getting into the eleven?—No.

851. *Lord F. Hervey.* I gather that your mathematical colleague wishes to see an alteration in the division of the subject rather than an alteration in the number of marks for the obligatory mathematics?—Yes, that is so.

852. Then would you not get out of the mathematical boys more work than they do now?—No, I think not; they would be tested more equally.

853. But they would have to do more work in the examinations?—Yes, certainly.

854. How far do you carry your school mathematics?—The standard fixed by the examiners is the only one we aim at in the Army class; I cannot speak for the rest of the school.

855. *The Chairman.* Do you attach any importance to geography being made an obligatory subject?—I think if it is intended that an Officer should know geography, it would be better, instead of having 1,000 marks for English, to give 500 to English and 500 to geography, and make them both obligatory.

856. *Lord F. Hervey.* Obligatory in what sense?—That a boy must take the subject up. I do not think I would adopt a plucking minimum in those subjects.

857. The mere inclusion of freehand drawing in Class III. has been quite sufficient to make it practically obligatory?—Yes, every one would take up geography, and know a little of it; but I was putting myself rather in the position of the Army authorities, and considering what they wished a boy to know. I do not see any harm in its remaining optional, but I think it will be crammed.

858. It was taken up before in the preliminary?—Yes, but what I am afraid of is that the range of subjects in the examination now will be very large indeed. Our boys have quite enough to do; and if more subjects are introduced, the danger will be that they will not learn more, but that they will be more superficial.

859. *Mr. Roby.* Suppose all the boys were required to take up mathematics, geometrical drawing, and some English, without any plucking minima, how many more subjects would you give?—I am, on the whole, quite content with the present (November, 1893), system; I think there ought to be four main obligatory subjects—mathematics, Latin, French or German, and geometrical drawing. To these I would add: English essay, geography and freehand drawing—so that the obligatory subjects should represent Army requirements. The optional subjects to remain as at present.

860. I am speaking of a maximum; would you say no more than four?—I think that would be enough. The two optional subjects might be reduced to one.

861. *Mr. MacNeill.* Would not an intelligent knowledge of English history connote a knowledge of geography?—Yes, perhaps so, but not enough foreign geography. I think if you make physical geography a prominent part of a geography paper you give a premium to the boys who take up geology. As I have already said, I regret very much the abolition of the preliminary examination. It was a good deal of worry and responsibility to us teachers, of which we are now relieved; but, on the other hand, when that examination was in existence a boy was made to begin to work hard sooner. Our danger is now that the boy will not begin till later on. When he had to do the preliminary examination he began his work earlier, and that was of much more value to us. With regard to the candidate himself, it was very convenient for the father or parent to get some idea at a comparatively early stage whether the boy had a good chance or not, because he was able to see by the preliminary examination whether it was worth while keeping the boy on.

862. Does not the ordinary school examination do that?—The father does not trust the school examination so much for such a purpose, it is not so good as an open test.

863. *Lord F. Herveg.* But the candidates did not know the number of marks they got in the preliminary?—That was so, they were simply told that they had passed or that they had failed.

864. *Mr. Whitmore.* Then how did they estimate their chances of getting into the Army?—By the ease with which they did the preliminary.

865. How would you know that they passed with ease?—If they passed the first time. I have had boys fail in mathematics several times.

866. Amongst those who succeeded you had no means of knowing who had done well or who had done badly?—No, but we had a foundation to go upon; they had to do fairly well in order to pass; and I think the result was very valuable to the candidates' parents.

867. *Lord F. Hervey.* What was the usual age at which the Harrow boys passed the preliminary?—About 15, I think.

868. Assuming that the military authorities attached considerable importance to a candidate for Sandhurst or Woolwich being well up in the subjects for the preliminary, there was an interval for two years for Sandhurst and one year for Woolwich between a candidate's passing the preliminary and his going up for the competitive, and in that time his knowledge of geographical features would have disappeared from his mind, would it not?—Not more so than any other knowledge. I find that boys remember most of these things, and I think it would take very little to brush them up, they are all more or less in their minds.

869. *The Chairman.* Have you anything to say with regard to the date of the examinations?—To us that is a very important point. Our boys are now being examined in London, and they will come back to us in a few days, then there is an awkward interval between their return and the end of the term, in which we do not know quite what to do with them. If they have passed they have practically left the school, and the interest of "the play" is over for them. If the winter examinations were put into the first week of December, instead of beginning on the 20th November, I think it would be a good thing for all the public schools, besides which it would give us more time to work. The time of the public school is not elastic like that of the crammer, he can begin his term on the 1st September, whereas we do not usually begin ours till the 23rd or 24th. It would be a very good thing if the examination could be held the first week in December and the first week in July, instead of as at present.

870. *Lord F. Hervey.* Now that the preliminary has been done away with, what would a boy be doing at Harrow, would he be doing nothing?—No, he would be working, but he would not have the same immediate stimulus as he had previously.

871. Do you think that the old system of a preliminary afforded that stimulus?—Yes, I do.

872. It made no difference to the boy whether he passed at 14 or 17, did it?—Yes, I think so. It relieved him of several subjects which were not required in the further examinations.

873. He could not go up for the further any earlier?—No, but he could not join the special class at Harrow till he had passed.

874. Perhaps he did not want to?—But his parents might. I can assure you the number of idlers is extremely small.

875. *The Chairman.* Could you not get over the difficulty by having your own Army class examinations, instead of waiting for the regular Army examinations?—We could do that of course.

876. *Mr. Roby.* With regard to drawing, do you ever find boys incapable of doing geometrical drawing in the same way as you say you find them incapable of doing mathematics?—No, I find they take to it as a rule.

877. Would there be any objection to making that a compulsory subject?—No, I think not. It is wanted very much at Sandhurst and Woolwich.

878. Have you anything to say with regard to freehand drawing?—I would make that obligatory also.

879. *Mr. Whitmore.* Have you any complaints to make as to the way freehand drawing is marked?—No, I cannot say that I have considered it in that way. With regard to the general questions, I should like to say that what the public schools really need most is a permanent system; for the last few years we have been in the very difficult position of not knowing upon what system to train our boys. We could work almost any system if we knew what we should be permanently required to do. We cannot change our staff of teachers like a private tutor can, and it would be the greatest possible boon to the public schools if a system could be fixed upon, which would last for 10, 15, or 20 years. The real point seems to be to arrive at some practical compromise between what the Army requires and what the public schools can give.

880. *Mr. MacNeill.* Do not you strongly insist upon Latin being retained because your idea is that Latin forms the chief part of a little boy's studies?—Yes, that is so; the Army does not want good Latin scholars, but Latin is an almost universal subject of education, and I think it is useful.

881. What is your idea with regard to putting the names of the examiners on the top of the examination papers?—I think the papers ought to be anonymous.

882. Why?—What is the use of having the name on the top of the paper?

883. Would it not secure the confidence of the public?—I do not think that question arises at all. I have always assumed that the examiners are honourable men.

884. *The Chairman.* Then I gather you are content to leave the responsibility with the Civil Service Commissioners?—Yes, certainly. I have never had the slightest reason to complain on that head.

[*The Witness withdrew.*]

Mr. W. M. Baker, *examined.*

(*See* also Appendices VIII. and XIII.)

885. *The Chairman.* You are the master of the Army class at Cheltenham, I believe?—Yes.

886. For how long have you held that position?—For a little more than five years. The school is now divided into two different departments—one the classical, and the other the military and civil department.

887. Which is the larger?—The military and civil department.

888. Have you any objections to make with regard to the present marking of the subjects for the Army examinations?—Yes, chiefly in regard to the higher mathematics. I was head mathematical master at Rossall before I came to Cheltenham, and the result of my experience all round is that it is becoming harder to score in mathematics as compared with the other optional subjects. For instance, here are some details taken from the last Woolwich examinations, that in June 1893:—

Of the 50 successful candidates—

Latin	50	took this subject;	37	gained over half marks.	
French ..	49	„ „	43	„	„
German ..	25	„ „	17	„	„
Science ..	17	„ „	14	„	„
English history	9	took this subject;	7	gained over half marks.	
Physics ..	6	„ „	5	„	„
Physiology, Geography, and Geology ..	4	„ „	2	„	„
Higher Mathematics	30	„ „	7	„	„

889. *Mr. Roby.* Do you say the same in regard to obligatory mathematics? Is it becoming more difficult to get high marks in them?—No.

890. What is the reason? Do you think there has been some change in the examiners, or was an attempt made to raise the standard?—Last time I think it was due to the fact that most of the problems had one method of solution, and one only; it was a good method no doubt, but if a candidate did not spot it he was done for. Until the last two years a boy of average ability could score fair marks, but now he cannot.

891. Do your better boys get as many marks as formerly?—Yes, boys of unusual mathematical ability still get good marks.

892. Does the boy who now gets only half marks at Woolwich stand a chance for a mathematical scholarship?—Yes, I think so.

893. *Mr. Whitmore.* Do you think that a boy would have got more marks under the old system than now?—Yes, a few years ago a boy of average ability would get half marks, *i.e.*, 1,000, but now he would get only about 700.

894. *Lord F. Hervey.* Are you aware that the average marks have been progressively increased?—I was not aware of that. Might not that be due to this, that the very best boys gain much higher marks than formerly?

895. I have here the results of the last 15 examinations, that is from 1886 to 1893, and I find that the average marks at the beginning were 23·3, the average marks at the end were 29·5, and dividing the period we find that the average marks are 20 per cent. in the first batch, 27 per cent. in the second batch, and 32 per cent. in the last batch; will not those figures rather modify your view?—Have you compared them with the marks given for German, science, physical geography, and geology; my main contention is that I think the subjects are not treated equally. I think you will find the average marks in other subjects have increased in a greater proportion.

896. *Mr. Roby.* Do almost all your boys for Woolwich take up mathematics?—Yes, but not the Sandhurst boys as a rule, unless they show some aptitude for the subject.

897. Do many of your boys, intended for Woolwich, miss Woolwich and get into Sandhurst?—Yes, and those who have been reading higher mathematics go on with the subject and take it up for Sandhurst.

898. Do many of your boys take up physics?—Chemistry, but not electricity or light and heat.

899. *General Sir W. O. Lennox.* Why is that, do they not pay?—Our staff is sufficient for the other subjects, and we do not consider it necessary to strike out another line.

900. *The Chairman.* Suppose a boy wished to take up physics?—We should then make arrangements for him.

901. *Mr. Roby.* Do you approve of Latin being taken up by all?—Yes.

902. Would you wish to give any alternative to Latin?—No, I think from an educational point of view, every Englishman ought to know Latin; our boys did not like it at first, but now they take to it, and get very good marks.

903. Do your boys take up Greek?—No.

904. Do your boys take up history?—Yes, the Sandhurst boys do, unless they take up higher mathematics, which means, that practically the majority of Sandhurst boys do take up history.

905. Do you approve of it?—The Sandhurst boy is not a boy of very great intelligence as a rule, and he finds history a difficult subject to score marks in, though he does not find it difficult to learn.

906. Do you think it brings out the ordinary differences between boys well?—Yes, I think so; we have always noticed that the boys we have considered best have always scored good marks in comparison with the others.

907. Have you any desire to displace it?—No, I think not.

908. Would you make it obligatory?—I look upon it more or less as essay writing; a boy who can make good marks in history can write well.

909. Do you think 1,000 marks too many for an essay?—I think it is a great many to give for that particular subject, but I understand that the authorities wish to increase the essay writing, because very many men in the Army could not write a good English letter.

910. Have you anything to say against the subject?—I think 1,000 marks a great many to give for an essay, because after all you cannot make a boy spend more than two hours a week on the subject, whereas double that time on a 2,000 subject would not be enough.

911. Would not his ordinary reading tell eventually on his composition?—Yes, but the ordinary Army candidate has not much time for general reading.

912. *The Chairman.* Do you see any use at all in the essay, or is it only done out of deference to the authorities?—I think it is a very useful thing.

913. Would another modern language, say French or German, be more useful?—That is a big question; an extra modern language would require very much more time.

914. *Mr. Roby.* One gentleman has suggested that there should be different papers set in the English composition; one to be an original essay, and another to be a review written by the candidate upon a pamphlet, speech, or article, do you approve of anything of that kind?—I think that is a very good idea; I think something beyond an essay would be advisable if 1,000 marks are to be given.

915. *Mr. MacNeill.* Are your boys of a very high literary standard?—The Woolwich boy is a boy of high mathematical power, and a better boy than the Sandhurst boy.

916. *Mr. Roby.* Are the boys who choose Woolwich as physically capable as the boys who choose Sandhurst?—As a rule, I think our Woolwich boys are physically capable, but not so physically capable as the Sandhurst boys; I think that is on account of the hard work.

917. *Mr. Whitmore.* Do you think a good mental calibre infers a physical inferiority?—No

918. *The Chairman.* Is the standard of the boy going up for Sandhurst a good one physically?—Yes, I think it is about the same as it was.

919. *Mr. Roby.* Are you fairly successful at Sandhurst?—Yes, much more successful than we were; the lowering of the age has done us a great deal of good. Formerly the boys left us at 19, and got in from the crammers. We are more successful now, and, considering the material with which we have to deal, we are as successful as we can hope to be.

920. Is there a larger proportion of your boys successful for Woolwich than for Sandhurst?—Yes.

921. To what do you attribute that?—All our best boys certainly choose Woolwich; our Sandhurst boy is, as a rule, the boy who cannot get into Woolwich.

922. *Lieut.-General Sir R. Gipps.* Why do your boys prefer Woolwich to Sandhurst?—Principally because they can live more cheaply in the Artillery or Engineers, the pay also is better.

923. *The Chairman.* Some people have lately advocated giving marks for physical development; have you anything to say with reference to a physical examination?—I think it would be a very good thing if you could do it fairly.

924. Do you think the difficulty is so great as to make it impracticable?—I do not see how you can test 800 or 900 boys in that way.

925. *Mr. Roby.* Suppose we try to arrange it in this way. Say that the last 30 or 40 of the successful boys should compete again as to their physical qualifications with the first 30 or 40 of the unsuccessful boys?—I think such a test would be an excellent thing if it can be applied fairly.

926. *Lord F. Hervey.* Supposing that the last successful candidate beat the first unsuccessful candidate by 50 marks, and in the physical examination the unsuccessful man beat the other by 51 marks, you would then transpose them on the list?—That might be a good thing, but it would be difficult.

927. *The Chairman.* Have you ever considered at all how it could be done?—No.

928. *Mr. Roby.* There are two schemes, one by physical measurements, and the other by tests in running, riding, &c.?—We have not considered them.

929. *Mr. MacNeill.* Would it not really resolve itself into a kind of selection, just as in the case of scholarships, boys are frequently selected by the examiners because they show greater promise than others, would it not come to something like that?—That would depend upon how many marks you gave.

930. Do you not think it would lead to heart-burnings?—Yes, I do, and I think such an examination would be a very difficult thing.

931. *The Chairman.* As you are aware there are at present five obligatory subjects, do you think those are too many to ask a boy to take up?—I was very sorry to see the extra subject put on for the Sandhurst boys. I should like to see one subject cut out. I think that they should take the three obligatory subjects—mathematics, Latin and one foreign language, and only one more instead of two.

932. *General Sir W. O. Lennox.* Is it not an advantage to take up two subjects instead of one?—No, they are overwhelmed with work now.

933. They are not compelled to take them?—No, but if you say you will allow them to take five subjects they certainly will take up the five, in order to get marks in them.

934. *Mr Roby.* Do you think it would be better for their own education to take up only four subjects?—Yes.

935. Would you diminish the choice?—No, I think the choice is a good one.

936. *The Chairman.* Do you think it is absolutely necessary to take up mathematics?—Yes, certainly.

937. Assuming that, would you see any objection to leaving the rest of the subjects optional, marking them all alike, and allowing the candidates to choose a certain number, say four, out of the list?—I do not see any objection to that, but it is reverting rather to the rules in force before 1888.

938. Do you think that plan is better than the present plan?—I think it was as good.

939. *Mr. Roby.* Do you think it would be necessary to mark all the optional subjects equally?—Yes, or else the boys would take up only the most highly marked subjects.

940. *Lord F. Hervey.* But before 1888 that was not the case?—So I understand.

941. *The Chairman.* Have you any idea why this system was altered?—No, I have not.

942. Do many of your boys take up scientific subjects?—Yes, a great number would like to take up science, but they are deterred by the present classes in Woolwich.

943. And for Sandhurst?—They mostly take up science or German, I think they are about equally divided.

944. *Lord F. Hervey.* Is there anything in the Sandhurst course, that you know of, to drive them away from taking scientific subjects?—No, nothing.

945. *Mr. Roby.* Do you think that geometrical drawing should be made necessary for everybody?—Yes, I think it is absolutely necessary, that is speaking as a layman; it is a good subject, we pay very special attention to it, and we have a man on purpose for that, and for nothing else.

946. Have you a strong feeling in favour of French or German, educationally?—No, I do not think there is very much difference between the two educationally, there is of course this difference between them, French grammar is very much easier than German grammar, but on the other hand French composition, on account of its idioms, is very much harder than German composition.

947. Are your teachers Englishmen or foreigners?—We have two Jerseymen, an Englishman, who lived for a long time in Switzerland, another is a German, and the last is an Englishman.

948. Can they all teach both languages?—Yes, all except one.

949. *General Sir W. O. Lennox.* Geometrical drawing has been raised to 1,000 marks, do you approve of that?—Yes, I think it a very good idea.

950. *Lord F. Hervey.* I understand that your view at the present time is, that the work done by a candidate in the higher mathematics represents a great deal more strain upon him than the work done to obtain an equal number of marks in the other subjects on Class II.?—Yes.

951. Would this be a better system? The higher mathematics to be divided into two subjects, each counting 2,000 marks, replacing the calculus, which was formerly in the syllabus, so that a boy could take those two as his two optional subjects?—I think that would be a very good thing indeed, except that I would not replace the calculus.

952. Up to what point are you able to push mathematics at school, that is for lads not exceeding 19?—Up to 18 our boys read the whole of the Woolwich syllabus, and the best of them know it thoroughly.

953. If you find them very promising mathematicians do you take them outside the Woolwich range?—No, not if they are Woolwich boys. They read higher work if they intend to go to either University.

954. *General Sir W. O. Lennox.* Do you mean the syllabus at Woolwich or the syllabus for going into Woolwich?—The syllabus for going into Woolwich.

955. *Lord F. Hervey.* Would you have from time to time boys of such mathematical ability that they would transcend the Woolwich syllabus?—Yes, occasionally.

956. Do you teach them the calculus?—Not until they pass into Woolwich.

957. Speaking generally, as regards the school, and apart from the military examinations, to what point do you reach in mathematics?—The best work is up to scholarship standard at the Universities'; that would include the calculus.

958. Do you see any objection to replacing the calculus of the mathematics were divided as I have suggested?—I would not replace it; there are very few boys who can reach the calculus by the time they are 18.

959. If the subject were divided you would retain the present range of the examination, would you not?—Yes.

960. How could you divide it? Into pure and mixed, or in some other fashion?—Pure and mixed is as good as you can have. You must remember conic sections are taken up, but no boy has learned that subject properly at 18, you may go on with it for ever; it is very narrowly treated at Woolwich examinations.

961. Do you think that that would be a fair arrangement, so that mathematics would virtually be put upon an equality with the other subjects?—Yes, I think so.

962. We cannot dispute the fact, can we, that for some reason or other the Woolwich candidates have been driven away from the higher mathematics?—That is so, the idea among the candidates is that if they take German or science rather than higher mathematics, they can get more marks.

963. *General Sir W. O. Lennox.* Have not the number of papers decreased?—Yes, but they carry the same total of marks.

964. Was that decrease in the number of papers an advantage or a disadvantage?—A disadvantage to the ordinary boy.

965. *Lord F. Hervey.* How would having three papers instead of two better a boy's chances of getting in if the marks were not altered?—The greater choice you give an ordinary boy the better for him; of course it does not affect the boy of unusual mathematical ability.

966. We do not get many of them, I suppose?—Yes, a certain number. I have sent up four or five in the last two years who could have got mathematical scholarships at the Universities.

967. Then I infer, altogether, that you think it would be a good change to divide higher mathematics into two subjects?—Yes.

968. Would it be assigning too many marks to higher mathematics?—I think not; it is a very big subject.

969. *Mr. Roby.* Are we to understand from you that practically conic sections are cut down in the range taken by the examinations?—Yes, they have to read the same amount as formerly, but they get only four questions. I think the present syllabus is a

good one, and I think they ought to be thoroughly examined upon it; that was not the case last time.

970. Do you think there ought to be more questions set in conic sections?—Yes, it deserves a whole paper to itself.

971. *General Sir W. O. Lennox.* If higher mathematics were divided into two portions, would it not tend to entirely shut out physics, that is if only two subjects were allowed to be taken from Class II., as at present?—I do not see why it should, they might take one of the branches of higher mathematics and physics.

972. Do you think they would?—No. I do not see the point of encouraging a boy to take up physics as a subject, they might take up chemistry. You see physics is a sort of consecutive subject to chemistry; they run more or less together if they are done thoroughly.

973. If mathematics were divided into two portions and the boys took up only one of those two, they would not be so well up in mathematics as they are now?—Those boys would not, certainly.

974. Then that would have a tendency to reduce the standard?—The present standard is coming down even now.

975. But unless you adhere entirely to mathematics the standard must be lower?—Yes, for those few, certainly.

976. *Lord F. Hervey.* And might it not also be higher, because you would be giving more encouragement to study mathematics?—Yes, certainly.

977. *General Sir W. O. Lennox.* But that would be to the exclusion of physics or chemistry?—Yes, it would exclude something.

978. *Lord F. Hervey.* I think comparatively few would trouble to take higher mathematics in both branches because the standard would be raised; we do not suggest giving 4,000 marks where we now give only 2,000?—I understand that.

979. With reference to physics, do you think it is felt the present syllabus is too extensive for that one subject?—No, I think not, there should be a choice. I was talking the other day to our head science master on the subject, and he said he would let the boys read only four out of the five branches; he thought a boy could do well at present, and get high marks without reading all five branches.

980. Do you yourself think the subject too extensive?—No.

981. Would you recommend a division of that into electricity and magnetism on the one hand, and heat and light on the other?—I do not think it is a subject which the public schools will take up well, because such an extensive staff is required for it. Some of our boys, of course, do read physics, but the Army candidates do not.

982. *Mr. Roby.* It has been suggested that having only one examiner to look over a paper, leads to capriciousness in the result, have you noticed that in regard to your boys at all?—No; boys, of course, in these examinations do surprising things. For instance, one of my pupils who was distinctly a mathematician, and very good, was beaten by 200 marks by a decidedly inferior mathematician at the examination last June.

983. Should you in your own mind account for that by a certain amount of capriciousness in the examiner and demand to have two examiners to look over the paper?—No, I think boys lose their heads sometimes,

984. *Lord F. Hervey.* Do you notice that boys do that in your own school examination?—Yes.

985. Is your school work looked over by two men?—Sometimes; or it is sent away to be inspected by a board of examiners so that in that way there is a double supervision and we get a decided opinion.

986. Is that inspection by two men done as a matter of course or with certain given papers only?—It is done as a matter of course with the lower forms every year. The higher forms are examined by outside examiners.

987. In the case of the important prizes, would a candidate be considered as having a grievance if a paper had not been looked over by more than one examiner?—No.

988. *Mr. Roby.* Do the examiners in your school differ much in regard to the mathematical papers?—No, I think they differ more in the other subjects. I have often tested the matter, and my opinion is that the examiners never differ very much.

989. *Mr. MacNeill.* But in a matter like history, which, as you know, would be largely essay writing, would there not be a greater divergence of opinion than in mathematics, in which an answer must be either right or wrong?—Yes, there would be.

990. Therefore, in matters where the element of taste comes into the question, would you not consider it better to have two examiners?—Yes.

991. And with regard to the various subjects which boys by preference take up, if there is an easy examiner in classics and a hard examiner in mathematics the relative proportions in the marking are not kept, are they?—No.

992. Then would there not be a better chance of having the differences corrected if there were a court of examiners, the same as there is at Oxford and Cambridge?—I think it would be a good thing if it were arranged that the highest marks and the lowest marks in the different subjects more or less coincided. I think that would be fair, because, after all, the best boys in the different subjects are practically equal, and they deserve to get the same marks.

993. *The Chairman.* Would you like to see one examination for Sandhurst and Woolwich?—Very much indeed; I think it would be an excellent thing.

994. Why?—Perhaps a boy goes up for his last shot at Woolwich and just fails, he is quite fit to go into Sandhurst; in fact, he probably has gained more marks than most of the Sandhurst boys, and if he could go in at once he would save quite six months. Of course he would have to qualify as regards age; a boy who went up for Woolwich at 16 would not qualify for Sandhurst on account of his age.

995. *Mr. Roby.* Do you think there is any necessity for altering the present ages for Woolwich and Sandhurst?—No.

996. *Lord F. Hervey.* Do you succeed in passing your Woolwich candidates between the ages of 16 and 17?—Yes.

997. *Mr. Roby.* Would you like to see the dates of the examinations altered in any way?—Yes, the June examination comes practically in the middle of the summer term, and the present examination comes about five weeks from the end of a term. I should like to see them altered to the first or second week in July and the second week in December.

998. *The Chairman.* Are you in favour of having the examinations held in the different centres in England?—Yes, I have a very strong feeling in favor of that. I think it is a dangerous thing to send boys up to London at the age at which they now have to come up; as to the expense, I am sure the parents would not object to whatever extra expense there might be so long as the boys were examined at local centres.

999. *Mr. Roby.* Is there any special arrangement made for the boys who are sent up to London for examination?—No, but we think of trying to make some arrangements for them.

1000. How many boys do you generally send up at a time?—We have sent up 21 this time, but we do not generally send up more than 16 or 17.

1001. Have you heard any complaints with reference to the dictation?—Yes, boys who are seated at the back of a room often say they cannot hear, they put up their hands and say they cannot hear, and the examiner tries to speak louder, but often he is quite unable to do so. I think there are too many dictated to at a time. I should like to ask whether there is any possibility of a rule being made that candidates should in all cases be called up to declare that they are *bonâ fide* candidates, because crammers do un-

doubtedly send boys up as mere advertisements, and with no intention of entering Woolwich or Sandhurst. We had a boy who once wanted to go up in that way, but we would not let him; he went away from us to a crammer, came out fourth in the Woolwich examination, and at present is at one of the Universities. Another thing I should like to ask is, can more definite instructions be given to candidates as to where to go to the *viva voce* examinations; two of our boys lost quite half an hour the other day in finding the place for the examination in practical chemistry. Again, would it be possible in publishing the lists of the successful candidates to put the names of their schools, the same as in the scholarship examinations; that would be an excellent thing for the public schools.

1002. Would you give a history of each boy?—I would put the name of the school, where a boy came direct from a school.

1003. Why should the public advertise particular places?—It would be a material advantage to the public schools.

1004. Supposing a lad went for three or four months to a crammer after leaving school, would the name of the school be known?—Not if the crammer's name were published.

1005. Would you not publish the crammer's name?—It could be done as in the Public School's Year Book, *e.g.*, "Public School and Captain James," or if a school only, then only the name of the public school.

[*The Witness withdrew.*]

FRIDAY, 24TH NOVEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Sir H. E. ROSCOE, M.P., F.R.S.
Dr. W. A. HUNTER, M.P.
Mr. J. G. SWIFT MACNEILL, M.P.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Mr. W. B. SCOONES, *examined.*

1006. *The Chairman.* You are a private tutor, I believe?—Yes.

1007. For how long have you been engaged as a private tutor?—For about 25 years.

1008. Have a great number of young men passed into the Army through your classes?—Yes, I have passed about 150 into the Army during those 25 years. I am also engaged in preparing for other services besides the Army.

1009. Have you had any opportunity of observing the systems pursued in France and Germany in regard to the examination of candidates for the Army?—I have had no actual experience, but I have studied the different methods employed both in France and in Germany. I consider, however, that they would hardly apply in the consideration of our own system, inasmuch as every Officer who can pass is needed, whereas we reject six out of every seven applicants. On the other hand, their standards are very much higher than ours.

1010. *Mr. Hunter.* Would they take in any man?—If he qualified up to a certain standard I think they would, but then you must remember in Germany their military education practically begins at the age of 14; from that age onwards a boy is constantly under observation, and he receives the education of an Officer—not merely a physical education, but also the general education which men in this country follow for only a certain number of years.

1011. *The Chairman.* Do the subjects for examination differ abroad?—I cannot say generally, but in France they certainly have to qualify in Latin and Greek.

1012. At what age is that qualification required?—In France from 19 to 21.

1013. *Mr. Roby.* But surely they do not require Greek in France?—Not in the competitive, but it is required in the qualifying examinations; it is like the mathematical examination here. At the regular competitive examination the subjects are mathematics (which is very highly marked), geography, science, history, and modern languages, and there is also a physical test.

1014. Do you mean to say that a candidate has to show a certain knowledge of Greek in order to get into the Army at all in France?—In the instructions published by the French War Office, and dated 1893, they say that no one will be admitted to the "compositions," that is a written examination, unless he is a bachelor of letters or has a certificate for what we should call our secondary schools, which includes a certain knowledge of Greek, I think.

1015. *The Chairman.* With regard to the subjects which are obligatory in our examinations, namely, mathematics, Latin, one of two foreign languages, English composition, and geometrical drawing, is there any other subject which you would like to see take the place of any of those subjects, or would you like to increase their number?—I think that geography—that is military geography—is for an Officer as important as any one of them.

1016. As the case now stands they have to take five subjects; they can take up two more from Class II., say a modern language and physics, or some other combination, making seven subjects in all, and then the two subjects, geography and freehand drawing, bring the total up to nine in all?—I understand that geography has only just been removed from the preliminary to the final, and given 500 marks; that I think is too little, and I imagine very few will take it up.

1017. Would you like to see it put into Class I., and marked at 2,000?—Yes, certainly.

1018. *Lord F. Hervey.* You are aware, are you not, that freehand drawing was marked at only 500?—Yes.

1019. And the inducement to gain the 500 was sufficient, was it not, to lead every candidate to take it up?—I think that practically all of them take it up.

1020. If that is so, why should not the same amount, 500, induce them to take up geography?—Because it is a very long subject, very tedious, and very hard to remember.

1021. Why should it be?—Candidates have always found it very hard; in the preliminary it was the subject which gave them the most trouble.

1022. Do you mean that they more often failed in that subject than in any other?—I cannot say that, but they seem to have looked on it as very hard.

1023. But compared with English spelling it is very easy, is it not?—I think the great majority failed in English spelling.

1024. *The Chairman.* Was not the old test examination in geography very simple?—Yes, but then it is a very wide subject; the questions covered the whole subject, and as a matter of fact they did not seem to conduce to an Officer's education; there was no military geography, which I should define as a knowledge of the strategic points of rivers and mountains, and a general observation of the physical parts of a country through which an Army might be supposed to pass.

1025. *Sir Henry Roscoe.* There is no such geography taught at present, is there?—I am not quite sure but, I think it is embraced in the Staff College examinations.

1026. *Lord F. Hervey.* In the very last report of the visitors of Sandhurst they recommend that military history and geography should be made part of the course in Sandhurst. If that is done, I suppose it will be less necessary to teach military geography to these candidates, four-fifths of whom never go into the Army at all?—It seems to me that the object should be to get the best educated men into the Army. I do not think we can consider the six men who fail; it is the one man who wins that we want to provide for.

1027. *Mr. Roby.* Is it not a subject for competitive examination elsewhere?—It is insisted upon by the Foreign Office and Diplomatic Services; the standard is rather high there. I think it is a subject which should be taught, although it requires a considerable amount of time; but it can be acquired, and these candidates very rarely fail to qualify.

1028. *Lord F. Hervey.* Are not the candidates for the Foreign Office about 23 years of age?—Yes, and some are older.

1029. We are now considering the mental equipment of candidates for Woolwich at 18 and Sandhurst at 19, and I do not think you can quote the Foreign Office as a guide in fixing the limits of the education of a boy?—Perhaps not; but I think it is within the capacity of any young man to learn geography.

1030. *The Chairman.* Would you like to see geography replace Latin?—No.

1031. Do you attach great importance to Latin being an obligatory subject?—Yes.

1032. Do you consider it absolutely necessary to have obligatory subjects, or would you prefer a free choice?—Yes, I should indeed. My idea of open competition is that the subjects should be many, and that each individual candidate should have his choice. The number of subjects should be restricted, but there should be a wide range of choice. Young fellows are so differently constituted, some like science and some like languages; and it seems to me that, if you are going to have an open competition, the choice should be free.

1033. That would necessarily involve the subjects all being marked the same, would it not?—Yes. I suppose it would interfere very greatly with public school education if Latin and mathematics were not made obligatory.

1034. Do you consider, generally speaking, that Latin is a very good groundwork for a youth to train his mind on?—I should say, the very best; and to that I think I should add mathematics.

1035. *Mr. Hunter.* Would you say that with regard to a boy who had a natural instinct for the facts of science; there are boys who have great distaste for languages?—If that is ascertained at 14 or 15 the public schools ought to provide for that particular boy. As I have already pointed out in my papers contributed to the "Nineteenth Century" Magazine, if a boy is found to dislike classics they ought to provide some other subject for him.

1036. *The Chairman.* Would you say that beyond a doubt Latin and mathematics are two of the most useful subjects for a boy's training?—Yes.

1037–8. Supposing that to be so, would it not naturally follow that those two subjects would be taken up whether they were obligatory or not?—I think so in a large majority of cases.

1039. *Sir H. Roscoe.* Would the 10 subjects be equally marked?—I think it would be fair to have them so.

1040. Each of which would represent a given amount, or the same amount of work and value?—Exactly.

1041. Do you think you could do that?—Yes.

1042. Would it not depend upon the examiners to take care that the papers were equally marked?—Yes, but I can imagine it to be an extremely difficult thing if there is no combined action on the part of the examiners. I think the examiners should communicate with one another as to the marking of particular subjects. These things constantly vary; at one examination Latin is high; at a second, history, and then perhaps at the third Latin comes on again.

1043. Is there no system by which that can be avoided; it appears very desirable that there should be some means of equalizing the different marks of these 10 different subjects?—I have had no personal communication with examiners, but I am under the impression that each of them is responsible for his own marking, and that they are all quite independent of each other.

1044. If some such scheme as that suggested by the Chairman were adopted, would it not be necessary to have some power for the equalization of the papers?—Yes, I think it is feasible and necessary.

1045. *Mr. Whitmore.* Are not some subjects more difficult for a candidate to get up than others?—It depends very much upon the quality of a boy's mind how far he can go in some subjects, but I think the difficulties are fairly distributed.

1046. *Lord F. Hervey.* As I understand it, there is no such thing as abstract difficulty, the difficulty is always relative to the student's mind, is it not?—Yes, I think so.

1047. *Mr. Hunter.* But probably you would agree that some things are more difficult than others, German than French, for instance?—I think French is more difficult than German.

1048. It depends upon the standard you insist upon; it would be easier to read a French novel than a German novel, would it not?—Not when once you have got your vocabulary; it is far more difficult to write good French than good German. The test for French in the Foreign Office is as high as they can make it.

1049. So that really it all comes back to the standard the examiners fix upon?—Yes.

1050. *Sir H. Roscoe.* If Latin and mathematics are treated as obligatory subjects, and 10 others added for free choice, how many of those 10 would you advise should be taken up?—If you consider geometrical drawing and the essay two subjects, then I think three optional subjects should be quite the superior limit.

1051. *The Chairman.* Would you, under all circumstances, make Latin and mathematics obligatory?—If you did not make them obligatory you would upset the whole curriculum of the public schools, and throw most of the candidates into the hands of the crammer.

1052. *Mr. Hunter.* Would not the public schools adapt themselves to the examination?—Yes, but it is impossible for the public schools to take the same pains with the details as the private tutor does. Although the public schools have their Army classes, the tendency of late years has been to fashion the Army examinations very much upon the plan of entrance to an English university, and not of the immediate needs of an Army Officer.

1053. *Mr. Whitmore.* Supposing mathematics and Latin were not made obligatory, would not a great proportion of your students take them up?—They would take up one or the other.

1054. *Mr. Roby.* Would not every boy take up the first portion of the mathematical subject?—Yes, I think very nearly all would.

1055. Would you expect them all to take up algebra?—No.

1056. And Euclid?—No, that might not be absolutely essential, but I think the public schools would insist upon it.

1057. I presume geometrical drawing would entail a knowledge of mathematics?—Yes, a man must know some mathematics in order to be a good geometrical draughtsman.

1058. Would Officers going into the Army through Sandhurst have any occasion for trigonometry?—No, not viewed from the ordinary point of everyday life.

1059. Do not you think that if you left elementary mathematics, that is arithmetic, English and geometrical drawing to be taken up by all candidates, you might leave them a free choice of other subjects?—It would be perfectly natural to do so, but I think there would be great opposition to it.

1060. But what is your own opinion?—I have always been in favour of the widest possible scope.

1061. Have you large numbers of Army candidates coming to you?—Not a large number, I have very many more for the Civil Service generally.

1062. Have you more for Sandhurst than for Woolwich?—Yes.

1063. *General Sir W. O. Lennox.* Which of these subjects would be useful for the other services, mathematics would not be equally useful, would it?—The Higher Civil Service is really governed now by the classical "Greats" examination, except the few "nomination" offices, such as the Parliament Office, the British Museum, and the Foreign Office.

1064. *The Chairman.* What are your views with regard to a physical test, have you any grounds for supposing that the standard is not so good as it ought to be?—For the last two or three years I have had occasion to make enquiries upon the subject; not only have I watched the candidates myself, but I have got the opinions of Officers Commanding regiments; and the outcome of my own observations is that, on the whole, about 80 per cent. of the candidates may be considered to be distinctly good, both intellectually and physically, but there is a constant residuum of 20 per cent., that might be much improved. 20 per cent. at Sandhurst under some circumstances might not perhaps be observable to any great extent, but if there are 200 men there at one time you would have 40 who are not all one could wish them to be, and if you take that over a course of 10 years you will find yourself with 300 or 400 Officers filling the places to which better men should have been chosen. The principle now is to select men by means of a brain test and then to fashion them at the Sandhurst gymnasium afterwards; it is ridiculous to suppose that some of those can ever be made into, say, good riders. You can train them in the subjects required for military purposes, but that does not necessarily make them strong healthy candidates.

1065. *Sir H. Roscoe.* Do you know the system by which the physique of the French boys is tested?—Yes. The examinations are held at about 10 different centres and at the principal towns where there are Cavalry barracks; the candidates are tested in riding, jumping, and fencing, and I believe they are obliged to take up all three of the subjects. Marks are awarded, the number being exactly a moiety of the marks awarded for the highest of the intellectual subjects, which is mathematics, and as that is awarded 16 marks so the physical test is awarded eight marks.

1066. Can the candidates be rejected on the physical test?—Yes, I think so.

1067. Must a boy obtain a certain number of marks?—He may get into the Army by some other road, but not into the Military College at St. Cyr.

1068. *Mr. Roby.* Do the Frenchmen mostly learn to ride in the riding school?—Yes, I think so.

1069. *Mr. Whitmore.* Do not you think it is more important to test Frenchmen in this way than Englishmen?—Yes, but they have very good gymnasts and riders, notwithstanding.

1070. *The Chairman.* Have they, as youths, any training corresponding to the training our boys get?—No, scarcely at all.

1071. *Sir H. Roscoe.* I suppose there are certain physiological tests which would determine independently of any actual test of strength, whether a boy was organically fit for the purposes of the Army?—Yes. It seems to me that if we are to have a physical test it would greatly popularise these examinations, but the test itself should be a very simple one, and no subject should be introduced which would tend to interfere with the boy's school recreation; nor should the marks allotted be so high as to take him away from his ordinary school work in order to prepare himself for the physical test. It should be, as far as possible, a natural test, and for this reason I would suggest that if we continue to give 3,000 marks for mathematics, we should only allot 1,500 marks for the physical test. If that were done I would distribute the marks in this way: For the medical examination 500 marks; and that examination should include sight and physical and general health. I went yesterday to see the candidates going into the examination. I saw them on Victoria Embankment, and I think I could personally have graded them as they passed along; some were small, but on the other hand, some were of remarkably fine physique. I think it would be easy to subdivide this test into three sections, sight, physique, general health, with three grades in each. I think a medium could be arrived at in this particular medical subject so that the grading of the marks under those three divisions could be properly carried out.

1072. *Mr. Whitmore.* That would involve all the candidates being examined by the same Board of doctors, would it not?—Yes.

1073. Do you think it would be possible to test the general health of the candidates in the short space of time allotted to this examination?—Yes, I think so, if it were not done too scientifically. We do not examine the English essay scientifically, and it would

be absurd to suppose that the candidates can, in a short time, be examined physically upon scientific principles; they can only be graded.

1074. *Mr. Hunter.* Do you mean that that could be done with numerical accuracy?—Yes, quite as accurately as the Essay.

1075. *Mr. Roby.* How would you propose to ascertain their efficiency with regard to general health?—I imagine that five or ten minutes would be enough for a medical man. The medical test at present is only as to whether a boy is medically unfit to go into the Army. I do not know quite what the standard actually is; but certainly the lad who is very delicate and who just passes muster comes to the examinations with the same chances as the finest lad from a public school.

1076. *The Chairman.* Does not that point to this, that the medical examination is not at present properly carried out?—I would not say that.

1077. *Mr. Roby.* What do you mean by physique? Would you class chest measurement in reference to height under health or under physique?—Under physique. I would also propose to give 400 marks for riding. Riding has been called an accomplishment, and presupposes means, but it is none the less an accomplishment and is a very important one for military men, and therefore I think the youths going into Sandhurst should be tested with regard to their capacity in that subject.

1078. *The Chairman.* Have you any knowledge of the character of the riding reports which come up from Sandhurst?—No, but I understand that a good many of those who were to go to India last month tumbled off their horses and had to postpone their journey; I believe that happened to several of them. I would suggest giving 200 marks for marksmanship with the rifle; that, of course, would have to be regulated by the Adjutants of the various Rifle Corps.

1079. *Sir H. Roscoe.* That would necessitate all boys having been in some Rifle Corps, would it not?—No, it merely means that if a lad has been in a Rifle Corps and become a marksman, which can only be done after hard work, he should get some credit for his skill. I would also give 200 marks for running. My idea is that the whole of these physical tests, including the medical test, should take place under one roof. I was speaking the other day to Colonel Wood, one of the Inspectors of Cavalry, and he said it would be perfectly easy to bring up about a dozen horses from Hounslow and a proper staff from Aldershot to conduct the whole of the examination, including the running and the riding, in the Agricultural Hall or at Olympia. I would, lastly, propose 200 marks for gymnastics, or jumping, or fencing, at the option of the candidate. This would bring the total to 1,500. Swimming is so very difficult a subject to arrange for, especially in the winter time, that I have not included it in my list.

1080. *The Chairman.* Might not a boy come up with a certificate for swimming the same as for marksmanship?—Certainly, if that can be arranged by certificate, I think a good swimmer ought certainly to have marks.

1081. Have you ever heard of a Commanding Officer being disqualified because he actually could not ride?—No.

1082. Have you heard that practical riding is as good in the Infantry as in the Cavalry?—I should say not throughout the regiment, though in a large number of Line regiments they have just as good polo teams as in the Cavalry, and therefore just as good riders, but I do not know how far that obtains all through an Infantry regiment.

1083. *Mr. Whitmore.* Would you have a necessary minimum in any one of these subjects?—I would make all of them voluntary except the medical, but this should certainly be compulsory.

1084. *The Chairman.* So that you might get a man who passed the medical test satisfactorily but who could not ride at all, nor possess a marksman's certificate, but be a capital runner or jumper?—Yes.

1085. Would that conduce to a very useful result?—You would get a man who has made himself somewhat of an athlete.

1086. *Lord F. Hervey.* Would you accept that as evidence of soundness of limb and physique?—Yes.

1087. *Mr. Hunter* Have the Germans any competitions in a physical test?—I think not.

1088. *Sir H. Roscoe.* Do I understand from you that no German Officer can get into a regiment unless he gets in through the schools to which you refer?—A German can become an Officer in one of two ways; he either passes through the military academy, or he enters as a private soldier, stating that he wishes to qualify as an Officer, remaining in the ranks until he is 23 years of age, when he goes to a school, and at the end of the year is required to pass the Lieutenants' examination. After that he is sent to a Krieg Schule, something like Sandhurst, for another year, and at the end of that time he is required to pass the Officers' examination. If, however, a man has been to a college and passed the Abiturien examination, which is somewhat similar to our "little go" at Oxford, he is exempted from the second examination to which I have referred.

1089. *Mr. Roby.* Have you thought at all of any plan by which the physical test may in some degree be made to tell upon the examinations. For instance, there is very little difference, intellectually, between a considerable number of those who get in at the end of the successful list and a number of those who are at the top of the unsuccessful list; have you thought at all of applying a physical test to those men?—Such a plan as that proposed would turn the scale in favour of the men of physique.

1090. Supposing 120 were wanted and we said we will pass the first 70, but we will make the last 50 and the first 50 of the unsuccessful candidates compete amongst themselves in an examination for physique or constitutional power?—It is perfectly clear that there is very little difference intellectually, as far as the marks themselves determine, between the 100th and 150th man on the list, but there is a great difference in the physique of the candidates all round the winning post.

1091. *Mr. Whitmore.* Have you any reason to suppose that your 20 per cent. of physically unsatisfactory men are to be found amongst those at the end of the successful list?—I think they are quite as likely to be found among the first 50 on the list, indeed, perhaps, more likely.

1092. *Mr. Roby.* Making a physical examination tell upon the position of a candidate is rather a new thing, but do you think it would be more likely to meet with public favour if it took place between those who are intellectually very little different from one another, or should it be applied to all?—It seems to me that it would be only fair to give a very intellectual man, if he happens to be strong and athletic, a chance of getting marks as well. I do not see why a physical test should be limited to a certain class.

1093. But your doubly fine fellows would be in all the same; it would not matter whether one of them was first or fifth?—Perhaps not, but still he would like to know what his marks would be.

1094. *Mr. MacNeill.* The physical test would apply only after the examination, that is, when the list is out?—That I understand is what is suggested by Mr. Roby.

1095. A competitive examination is not a perfect test, but it is perhaps the best we know of, would it not, therefore, create great heartburning for a young man with 1,500 marks to find that another with only 1,499 had afterwards got ahead of him?—Yes, I think so. I think that the physical test should be a preliminary test, and each man should have his marks given to him to take to the Civil Service Commissioners.

1096. *Mr. Roby.* But would there not be greater difficulty in examining 600 men than in examining only 100?—No doubt, dealing with the smaller number would save a great deal of trouble.

1097. *The Chairman.* The medical examination, I understand, takes place now after the examination, could not the physical test be also applied then?—Then I think, in common fairness, you should declare only the marks of the first 70, and not of the other 100; you should not publish the whole of the marks, and then examine afterwards.

1098. At present there are a certain number of subjects to be taken up, and every boy prepares for them, and if riding, jumping, and so on, are made subjects of examination, will not they rather become inducements to a certain amount of cramming?—Most of the public schoolboys are always in training in some form or another, though, of course, it is not severe training.

1099. But do not you think they would make it severe training?—I think not for such a small total as 200 marks.

1100. *Lord F. Hervey.* I understand, in all your answers, you have been considering rather what is necessary for an Officer of the Army?—Yes.

1101. You are aware, are you not, that for two years or eighteen months after the lads go through this examination, they are in the hands of the military authorities, and continue their training?—Yes.

1102. Therefore, we have not to consider, have we, their being perfectly equipped for taking up the positions of military Officers?—That is so in military subjects.

1103. Are you aware that, according to the Sandhurst time-tables, there is no intellectual work done either in summer or winter after 1 o'clock in the afternoon?—No, I was not aware of that.

1104. You have had great opportunities of seeing what amount of intellectual work young men are capable of performing, do you, therefore, think that the tasks allotted to them at Sandhurst, and occupying four hours and 20 minutes in the summer, and four hours and five minutes in the winter are injurious and exacting?—I should say not.

1105. The Board of Visitors inform us that a great proportion of the four hours allotted to study is spent in the open air, and they say that the work done then does not involve any brain work; if that is so, do you think the brain work might be increased without doing any harm to the students?—Yes, but not by very much, because a great deal must be taken out of them in the gymnasium, if they have to work there in addition to their other work. What is the kind of physical work required at Sandhurst?

1106. *General Sir W. O. Lennox.* Riding and jumping and digging and bridging.

1107. *Mr. Whitmore.* Is not one exercise somewhat of a relief from another?—Yes, but perhaps severe physical exercises would prevent their doing overmuch brain work.

1108. *The Chairman.* Do you think that the class of boy who comes up for the Army is intellectually inferior to those coming up for the other professions?—Undoubtedly as a whole, but then the age limit is so low. My idea is that it was a great mistake to lower the limit for Sandhurst to 19, because some of the finest of the public schoolboys, the class that you wish to get into the Army, have so little time to prepare when they have done all the honours of their school in the cricket field, and so forth; it cuts them completely adrift. I have had pupils who were as fine fellows as you could imagine, with really only five or six months in which to pull themselves together for the Sandhurst examination.

1109. *Sir H. Roscoe.* Is there not any Army class at Eton, and if so, ought they not to be in that?—Yes, but they are beaten by the sixth form boy who has been working steadily on at classics. The athletic man has become a sort of demi-god, and he is led, no doubt, to utilize much of his time for the purposes of sport rather than for work.

1110. *Mr. MacNeill.* Do they come to you simply as barbarized athletes of the arena?—I have had one or two who were athletes and nothing else, they never had a chance of passing. Possibly fully one-third of those who do pass are men drawn chiefly from the sixth form of the public schools, and they are distinctly good scholars.

1111. *Mr. Roby.* Do you find any large number of your pupils of all sorts who really cannot spell?—Very few, I think.

1112. Do you meet many cases of men whose spelling at work is regularly bad?—Not more than 5 per cent., I think, but I do meet with some whom it is impossible to teach.

1113. Are they good in other things?—Not as a rule, though I have had a few cases of able men whose spelling was very indifferent; the majority of those who spell badly are usually what we term "duffers."

1114. But taking those who have some intellectual knowledge and power, there are very few who spell habitually badly, are there not?—Yes.

1115. Are they persons who take up, as a rule, mathematics or science, or something of that kind?—I have not observed much with regard to that.

1116. *Lieut.-General Sir R. Gipps.* Are we to take it that in your opinion these intellectual examinations deprive the Army of the most athletic and the most healthy of the youths from the public schools?—I certainly do not say that, but I will say that it deprives them of a certain percentage.

1117. Is the percentage a big one?—I should say not more than about 20, and I think some physical test might exactly turn the scale in favour of the stronger lads.

1118. *Mr. Roby.* Would they all get in with your physical test?—No, it can only possibly apply between the last 50 who succeed and the first 50 who fail.

1119. Then how many do you think would get in by your physical test who are now excluded?—Probably about 10 to 15 per cent., not more.

1120. *Mr. MacNeill.* Would not such a system eventually lead to simple selection; first of all the boys' names would be known, and they would be known?—That remark applies to oral examinations in French and German, if it applies at all.

1121. *The Chairman.* At present we give a certain proportion of marks for colloquial French and German, would you like to see that number increased?—I never could imagine why the number was lowered, it used to be 400, but now it is only 200, which practically is an inducement to the lads not to learn to talk.

1122. *Mr. Roby.* Supposing the case was that as there were only ten minutes for that subject it was thought that about one-fifth of the total number of marks would be sufficient to assign to it?—I should say that five minutes would be sufficient for an examiner to find out what a lad could do.

1123. Would you not be afraid to allow 20 per cent. of the marks given for any language to be given for five or ten minutes' colloquial examination?—I should say certainly not. At the Foreign Office they give 20 minutes, and there the candidates are tested very carefully.

1124. *Lord F. Hervey.* But is it not the case that only about eight or ten candidates go up at one time for that examination?—Generally, it is so.

1125. *The Chairman.* Would not the colloquial examination in French be chiefly on the French authors?—Not necessarily, but I think a knowledge of French literature should be required in the papers as well as in the colloquial.

1126. *Mr. MacNeill.* Do you think that five or ten minutes is abundantly sufficient for testing a candidate's colloquial knowledge of French?—Yes, to test the power of talking.

1127. But in English, which the boy does know, he might from bashfulness or some other cause be at anything but his ease in that time?—If the boy speaks at all an examiner must know whether he speaks with any fluency or accent or not, I do not think bashfulness would affect the question at all.

1128. *Lord F. Hervey.* Are we to understand that

you would like English composition made obligatory upon all candidates?—I should like to see every candidate made to write an English essay, certainly, because I think thereby you could not only test his spelling, but you could also test to a certain extent his general intelligence, which would be very useful.

1129. Do you think the number of marks which is now double what it was is enough?—Abundant.

1130. Excessive?—Perhaps so.

1131. Would you say that, while bearing in mind that it is proposed to take off marks for bad spelling and bad handwriting?—I think 1,000 marks rather high considering the test, but I should not think it too much for the Indian Civil Service or the Home Civil Service. For military purposes I think 500 marks would be abundant.

1132. It has been suggested to us, with reference to English compositions, that we should test the candidates as to their power of criticizing something put before them for review, a pamphlet or a speech, what do you think of such a suggestion?—It sounds to me very much like a suggestion in favour of the sixth form classical boy, but I do not think everything should be done for him. If the boy were made to do a précis or something practical, I should say yes, but I think it would be hardly necessary in the case of Army candidates to have a merely intellectual test set in such a competition.

1133. So far as testing a candidate's power to write English grammatically and correctly it is not necessary to keep him writing two or three hours, is it?—No, besides which he has an opportunity of showing his power by taking up history, or if he did not take up history his English can easily be seen in all his translations.

1134. Do you think it would be a good thing to include a précis in the English composition paper?—I think if they had to deal with some practical matters, such as looking over and writing a précis of military dispatches, it would be a good thing.

1135. Have you ever prepared any of your own pupils in that subject?—Yes, for very many years. With regard to the question of history, would it not be possible to limit its range in some more practical manner than is done now? It seems to me that to have an examination upon the history from the very earliest times down to the present date, and to expect lads to be ready for any question which it may suit the examiner to ask, is excessive for lads of that age. I think if some period were taken, restricted to two or three centuries, and if there were included in that as much military matter as possible, it would be to the candidate's advantage. I should say examine from the 16th century onwards.

1136. *Mr. Hunter.* Do you consider it desirable that candidates in an entrance examination for the Army, the great majority of the boys coming up for which pass into civil occupations, should be introduced at that early age to military matters?—I think a boy may just as well read the story of Marlborough's wars as the wars of Edward III.

1137. Is it not time enough to do that after getting into Sandhurst?—They could, but I think there is much more serious work to do when they get there. I think the general period is now too wide.

1138. *Mr. MacNeill.* Could not the general history be very well covered by such a book as the Student's Hume?—Yes, I think so.

1139. *Sir H. Roscoe.* Have you had any experience with regard to the scientific portion of the examination?—No, scarcely any of my students have taken science and, therefore, I have not had sufficient experience to justify any opinion upon it.

1140. Have you any opinion as to the necessity, or otherwise, for introducing science subjects into the examination?—I think the wider the range the better because so many different classes of men present themselves for this examination.

1141. Would you exclude any of the present science subjects?—No.

1142. *Mr. Roby.* Do you find that any of your candidates do freehand drawing?—Yes, they nearly all take it up.

1143. Would you still keep it among the subjects which all ought to take?—Yes, I think so, because to be a good draughtsman is a very good thing for an Officer.

1144. Do you find many of the boys very bad in regard to freehand drawing?—Yes, but some are very good.

1145. *The Chairman.* Would freehand drawing be of use in the field unless it was accurate?—I think being an adept with the pencil will always be very useful to an Officer.

1146. *Mr. Whitmore.* Some criticisms have been passed upon the marking of the freehand drawing, have you anything to remark upon that subject?—No.

1147. *Mr. MacNeill.* Do you think it would be advantageous to have more than one examiner in each subject; if there were two examiners they could look over the papers and confer together if necessary. Some examiners are inclined to mark high and some low, and, therefore, is it not better to have two or more to look over the papers?—I think if two examiners decided upon the marking of the first two or three papers they each might continue the marking of his own share afterwards; it would take a long time to go through, say, 700 papers twice.

1148. But the importance of the issue is enormous to these young men?—Yes, certainly.

1149. Might not the extra examiners be provided for by an increase of fees, because at present so much depends upon the caprice of a single examiner?—Yes, perhaps so.

1150. *Mr. Roby.* Have you, in your own experience, noticed anything about the examinations which has led you to think them capricious?—Sometimes, although I have constantly been surprised at the accuracy with which the general result has been arrived at.

1151. Then you have not seen anything that has led you to think that the examination has been capricious?—Except as regards the constant alteration of the standard.

1152. *Mr. Whitmore.* Do you mean an alteration in the difficulty of the papers, or an alteration in the severity of the marking?—An alteration in the severity of the marking.

1153. Do you think the papers vary unduly?—No, I think the papers are reasonably searching, and good and sound.

1154. Do you think the examiners lose their tempers a little, or get capricious, sometimes?—One constantly hears the lads saying, "Latin is marked low this year," or "history is high," and the standard has at times certainly shifted.

1155. *General Sir W. O. Lennox.* But is not that often due to the fact that a boy having got, say 1,500 marks for a subject in one examination, slackens off in that subject and takes up something else?—Yes, perhaps so, but only occasionally.

1156. *Mr. Roby.* Do you think the change is due to the examiner, or to the fact that a large number of well qualified men in that subject have come into the examination?—No, because, generally speaking, the marking has altered all round, from top to bottom.

1157. *Mr. Hunter.* In your experience in preparing young men for the Army, does it often happen that a candidate whom you do not expect to get in does get in?—No.

1158. Does the converse of that often happen?—Only when the standard all round is really higher than I anticipated, when I expect a man who can get 6,000 marks to get in, and I find that the last man in has got 6,500 marks, then of course I am disappointed; but generally those I expect to get in do get in.

1159. *Sir H. Roscoe.* Does not that point to the conclusion that some sort of regulation of the question of marking might with advantage be introduced, as

in the system pursued at South Kensington: do not you think some oversight over the questions set, the answers given, and the marks allotted, might with advantage be adopted?—I think if each examiner could submit his questions to a Board it would be thoroughly understood, in the event of a change of examiners, what the standard expected was, and in that way a great deal of trouble might be obviated. I think an examiner should be told that the marking for December should be on precisely the same lines as the marking for June, and if there is necessarily a change of examiners, the outgoing one should coach up the new man in the marking.

1160. Do you see any difficulty in such an arrangement as that being come to?—No.

1161. *The Chairman.* Does all the evidence you have been giving relate to Sandhurst only?—Yes.

1162. Have you anything to say with reference to Woolwich?—No.

1163. *General Sir W. O. Lennox.* Do you think that physics with 2,000 marks is marked too highly?—No.

1164. Do you think it would be advisable to have physics as two subjects, or only one, as now?—Only one, I think.

[*The Witness withdrew.*]

Rev. Henry Palin Gurney, *examined.*

1165. *The Chairman.* You are a private tutor, engaged in preparing candidates for the Army examinations, I believe?—Yes.

1166. For how long have you been so engaged?—I have been with Mr. Wren since the year 1870. I passed the mathematical tripos in January, 1870, and the natural science tripos in December of the same year, and I joined Mr. Wren immediately afterwards.

1167. Dealing with the present regulations, have you anything to say with regard to the subjects in Class I.?—I think they are more than a boy can do justice to, besides which. I do not think they are the best subjects for the education of the Army. Five obligatory subjects, two optional, and two more afterwards, if you consider the importance of the subjects, and the thoroughness with which the examination is conducted at present, are too much.

1168. What do you think would be the right number of subjects?—I think the subjects must be weighed, and not counted. The subjects should be, firstly, elementary mathematics, much as they are here scheduled in the existing regulations; but I would prefer arithmetic not to take any prominence; it is an additional subject, and must be attended to, and it makes more work. I would then add simple grammatical English prose, freehand drawing, and geometrical drawing. I think that freehand drawing is an extremely useful accomplishment for a military officer. French, I think, should be an obligatory language. I would also say a science which should be chemistry or physics, or, if you must have geography in, I would make that a new subject, calling it military geography, which should include physical, mathematical, and political, and perhaps topographical, historical and strategical, as well. That is, geography considered with reference to a soldier's occupation, and I would make it an alternative to chemistry or physics.

1169. Would you mark those subjects all the same?—No, I think mathematics should have 2,500 marks, that does not represent its importance, but practically I do not think you can give it more. English composition I would give 1,000, freehand drawing 500, geometrical drawing 1,000, French 2,000, and the science 2,000.

1170. *Mr. Roby.* When you say, "obligatory" subjects, do you mean that all students should take them up?—Yes; personally I would not have any minimum, but if a minimum is insisted upon, then I think that should apply only to mathematics.

1171. *Lord F. Hervey.* Where would the obligation come in?—In that they would be obliged to take them up, as they do Latin now.

1172. But no one is obliged to take up Latin now?—If they do not it is still counted as one of their subjects. I would treat these on the footing of the old Class I. subjects, but without any qualifying minimum.

1173. Then would you say with only such obligation as competition necessarily implies?—Yes, I think in view of the fact that about 1,000 young men come up for these examinations, they would be compelled to take them up. In addition to the subjects to which I have already referred, I would advise two voluntary subjects.

1174. *The Chairman.* Would you take the whole of Class II. and let them choose?—Yes; and I think you might give them the choice of some more languages besides German. I would let the higher mathematics come into Class II., but I would give a larger variety of languages than there is at present.

1175. *Mr. Roby.* Would you allow them to take up two modern languages?—No, only one modern language in addition to French. I think very highly of the educational value of Latin; but, at the same time, the pressure is so great in consequence of the large number of subjects required for the examinations, as well as the subjects desirable or necessary for their professional careers, that it is impossible for the lads to find time to do justice to Latin.

1176. How would you like to have that in Class I., but as an alternative to German?—I think it would be better to put science in Class I.

1177. Would you retain English history in Class II.?—Yes.

1178. Would you put geography into Class II.?—No, I think not, except as a science when not taken in Class I. as already described.

1179. Are you in favour of dividing physics into two subjects—electricity and magnetism as one, and heat and light as the other?—I think it is more useful for an Officer to have a general elementary knowledge of physics.

1180. Would you give 2,000 marks to all the subjects in Class II.?—Yes; although it does not represent the difficulty (say) of Latin, in which subject it would require a great deal more work to get 1,000 marks than it would to get 1,500 marks in English history.

1181. But, as a matter of fact, they get relatively higher marks in Latin now than in history, do they not?—Yes, but that is because Latin is taken more seriously than history, and taught much better in the schools.

1182. *The Chairman.* You practically propose that a candidate should take up eight subjects?—That is so.

1183. I gathered that you thought nine subjects more than any boy could do?—Yes; but, you see, Latin was obligatory, and then I have counted free-

hand drawing. Of course, the principal difference is in the obligatory Latin. It is a very heavy subject, it takes a great deal of time, and I do not think the results are at all adequate. A boy does not get the amount of education from a given number of hours spent on Latin, or the amount of useful information for his professional purposes, that he would get if he had given the same time time to science.

1184. *Sir H. Roscoe.* Speaking from your knowledge of the way in which science is taught in the large public schools, do you think its present condition is sufficiently good to warrant us considering that we are far enough advanced in the scientific direction to enable us to get a sufficiently qualified candidate from a public school, where he has given his attention to science rather than to Latin and the classical subjects to which such an immense amount of time has for centuries been devoted?—I think so, speaking for such schools as the City of London School, St. Paul's, Harrow and others, where they have good science masters; in fact I think in very many schools science is taught, relatively, as well as Latin, and in some much better. In this connection it might be mentioned, that the Natural Sciences Tripos is now the largest of all; that the *majority* of the Freshmen at Cambridge this year have elected to read natural sciences; and that at the recent scholarship examination at Trinity College, Cambridge, for youths proposing to come into residence in October, 1894, there were as many candidates for natural sciences as for classics.

1185. *Mr. Roby.* You appear to have in your mind what the candidates will know; but supposing the examination is regarded merely as a system for selecting the best qualified person, would that alter your view?—Yes, I think it would; if it is to be regarded merely as a system of selection, I should put out geometrical drawing and freehand drawing. I think that science, mathematics, and Latin are all admirably adapted for selecting candidates irrespective of what is useful for them afterwards. Personally, I think science offers a very good means of separating candidates, because it tests their powers of reasoning and observation as well as their hand skill.

1186. That implies giving a good many marks for the practical examination, does it not?—Yes.

1187. If you regard the examination merely as a means of selection, would you make as the regular subjects in Class I., Latin, English, mathematics, and one physical subject?—Yes.

1188. *The Chairman.* The view has been expressed here that it would be as well to widen the list as much as possible—to take ten subjects, mark them all the same, and allow a candidate to take up any five. Do you think that would be a good thing, having regard to the fact that (owing to their differently constituted minds) boys can do better at some subjects than at others?—I think that would have advantages, but it is preferable to indicate to boys the kind of study that would be useful to them. I understand that in Germany Officers are placed in certain schools at the early age of 7 or 8, and they remain there until they are 17 or 18, studying no Latin and no Greek, nothing but science, mathematics, and modern languages.

1189. *Mr. Hunter.* In that case, I suppose, their getting into the Army is certain if they reach a particular standard?—Yes, I believe so.

1190. *The Chairman.* Supposing 800 candidates came up, of whom only 100 are successful, would it not be rather hard on those who failed to make them specialists?—I think it is practically the most useful examination they can have. A smattering of Latin grammar is of no use to a boy. I think that Latin has an undue weight in English education, and although I have great admiration for it, yet there are, in my opinion, other things quite as good as educators, and of more practical use afterwards.

1191. If Latin is as good an educator as you seem to think, would not nine out of every ten boys be so instructed in it that it would be taken up in the examinations?—No, boys intended for the Army would go to the modern side of the schools. I think you will find that there are so many subjects to be studied on the modern sides of the good schools, such as Harrow, that Latin cannot find adequate time.

1192. *Sir H. Roscoe.* Might not that apply to a senior class, the boys having spent previously so many years at it?—Yes, perhaps so, but a senior who has done good work at Latin continues it.

1193. *Mr. Roby.* Would he know anything of French or German?—Yes, possibly something, but modern languages are chiefly taught on the modern sides.

1194. But he would know nothing of science?—That goes without saying. If a boy is good at classics he is kept entirely to classics, and if he takes up science it is better for him to keep to that. That is why they are so successful in classics and science at St. Paul's School.

1195. Have you, in your own practice, had much experience in testing the qualifications of boys in physical science, so as to enable you to judge whether it is a good subject for examination?—I have examined in natural science many times for scholarships and for the Tripos at Cambridge, and there I have found that the candidates are extremely well taught.

1196. You were dealing with candidates two or three years older than ours, were you not?—Yes, but I have examined for open scholarships as well, and in those instances I found the boys well taught. To prove the value of natural sciences as a means of selection, I may mention that a man who took a first class in the natural science tripos in 1892, maintained his place in the Indian Civil Service examination in 1893, showing that he had good abilities and was able to take other subjects besides science.

1197. *Sir H. Roscoe.* Chemistry is an easy subject, is it not?—It is a comparatively easy subject, but is it not everybody who can do it.

1198. *Mr. Roby.* Which do you think is the best as a means of discriminating boys?—Physics, I think.

1199. *The Chairman.* A great deal has been said with regard to a physical test (that is apart from the medical test) for candidates coming up for the Army, have you anything to say in reference to that?—I hold very decided views upon that point. If by a physical test you merely mean a severer medical examination, a more searching examination, accompanied by anthropometrical measurements of the chest and so on, than you now adopt, then I think you have a perfect right to have it, because you have so many candidates coming up; but if you mean a series of tests by athletic sports, then I say it is neither practical nor necessary. I have heard no complaints of failures in physique on the part of Officers of the Army, nor do I consider that for them mere muscular development is necessary. Many of our most successful Officers have been men of great endurance, but not necessarily men of great muscular development. In my opinion athletics do not need any more encouragment. At the public schools and Universities athletics are to a very great extent taking the place of more serious studies, and if you gave marks for them you would have the young men trying, perhaps, to make records and times, and very likely injure themselves. I am not prejudiced against athletics. I had the honour of representing my University twice in the mile race and I rowed in my college boat.

1200. *Mr. Roby.* Would you wish these anthropometrical measurements confined entirely to a qualifying examination?—Yes, I do not think it necessary to give marks for them, if you do, they should not be many. I certainly think you have the right to select the finest men if you wish for them.

1201. Would you say 300 for the best, 200 for the medium, and 100 for those who just passed the test?—Yes, that would be amply sufficient.

1202. *The Chairman.* Have you a right to look for great muscular development in boys of from 18 to

19?—No, but you can make measurements to show whether they are likely to become what you want or not; I would leave the matter entirely with the doctors, and I would take their verdict.

1203. Then I gather that you would require the medical examination to be a very thorough one?—Yes, I think you can demand that, and I do not think the present medical examination is quite as strict as it might be. I believe the examination for the Navy is much stricter than that for the Army.

1204. Have you had many shortsighted boys through your hands?—Yes, a fair number, but not an increasing number.

1205. Have you had boys rejected on that account?—No, because directly I find a boy with short sight I advise him to choose another career.

1206. One of the witnesses who have been before us has suggested a physical test, for the whole of which he would give 1,500 marks. For sight, physique and general health—that is practically the medical examination—500 marks; for riding, 400; for marksmanship with the rifle, 200; for running, 200; for fencing, gymnastics, or jumping, 200?—I do not think that would be desirable; they spend quite enough time on athletics at present, and if you give marks they will spend still more.

1207. Do you think it would become a subject of cram?—Yes.

1208. *Mr. Roby.* Taking it as a subject of selection simply, and giving some kind of marking, would it not enable us practically to select persons likely to become useful in the Army?—That is reasonable enough, but I would not test by means of athletic sports.

1209. What would you say with regard to riding?—I do not think that would be fair for a test, because the lads have very unequal opportunities.

1210. But might you not by that means get those best qualified for the Army?—They may not be particularly well qualified for the Army, because most of the boys who ride do not ride in a military fashion. Such a test as that would prejudice all boys brought up in towns but the sons of rich persons.

1211. What would you say to such a system as this: Examine the last 50 of the successful and the first 50 of the unsuccessful (between whom there is very little intellectual difference), by means of a physical test?—If you have such a test, I think it ought to apply to all. Riding is certainly a much better test than running or jumping, and if you are to have any physical test besides the medical examination, riding undoubtedly comes first. I think on all possible grounds it is enough to be content with a thorough medical examination.

1212. What I am suggesting leaves full space for the superior intellectual qualifications to get in, this takes only those who are very little different in intellectual power. Suppose we took the first 70 out of 120, and then took the next 100, and announced that a decision with regard to 50 of them would be decided by physical test?—I think it would be very much better to treat them all alike.

1213. There is this first to be considered, that in treating them all alike, you have to subject perhaps 800 candidates to an examination instead of about 100?—Yes.

1214. *Mr. Hunter.* Do you think it possible to make physical tests so distinct and fair as to produce in the minds of the public confidence in the result of a competition of that kind?—No. I have heard lately a great deal about the riding examination for the Indian Civil Service; a great many of the candidates have been rejected, and yet some of the men rejected have been riding from their earliest days.

1215. *The Chairman.* I rather gather from the drift of your evidence that you consider a physical test examination is almost impracticable, and even if it were practicable it would be undesirable?—That is so.

1216. *Lord F. Hervey.* Does not that apply equally well to the anthropometric test?—No, only to a gymnastic test, which I think would give great dissatisfaction. We have had experience of a physical examination of late in the Indian Forests Service examinations, in which much injustice was done to some of the candidates in being made to walk on the Saturday preceding the examination about 25 miles; some came in utterly exhausted, and many of them were quite unfit to do what was wanted of them in the following week.

1217. *Mr. MacNeill.* Would not this physical test create a method, more or less disguised, of selection?—The public would think so, I believe.

1218. *The Chairman.* What do you consider the object of the examination to be, to find boys generally so intelligent that they pass certain tests, or would you have them examined in the subjects they are likely to require in the Army?—Having regard to the capabilities of Army candidates, the extensive range of their important duties, especially in the Royal Engineers and the Royal Artillery, and the universal practice of foreign nations, I am decidedly of opinion that the candidates should be examined in subjects likely to be useful to them in the Army, but not in strictly professional subjects.

1219. But is it to be a test to show which are the most intelligent boys who would be capable of acquiring the knowledge which is valuable in their profession?—It is not always the most intelligent boys who would be the most useful, because their previous education might be unsuitable to fit them for an Officer's studies. The boy who learned Latin or Greek and knew nothing of mathematics would be no good at Sandhurst; I do not think he could follow the course and make as good an Officer as a boy trained in mathematics, drawing and science.

1220. Do you wish to get into Sandhurst boys of such natural intelligence that they will become useful in the Service, or do you want them to have a certain specified education to make them fulfil their duties as Officers?—I think the consideration of intelligence ought not to be omitted, but the subsequent career is the principal thing to be considered. As a general rule boys who can do one subject well have sufficient intelligence to do others in a satisfactory manner.

1221. You are in partnership with Mr. Wren, are you not?—Yes.

1222. Do your views generally agree with his?—Yes, but we are accustomed to think for ourselves, and his views do not always agree with mine. For instance, Mr. Wren wants to make the age for Woolwich and Sandhurst the same, but I cannot agree with him in that because the Woolwich Course is the longer of the two, and I think the Woolwich boy ought to go in younger.

1223. In point of subjects for examination, do you agree?—I think his list is a little longer than mine; among obligatory subjects he includes history. I think that is a very bad subject for educational purposes, because we are so incapable of teaching it well to any but young children. Of course, there is a splendid school at Oxford where they can deal with ancient charters and original authorities; but in general, I think, our teaching of history is hopelessly bad. Boys at school learn simply a mass of facts, of the relative proportions of which they have no idea; in fact, it is as much a cram subject as literature would be with Army candidates.

1224. What would you say with regard to composition?—That would be a good subject in a preliminary as well as the competitive examination, and I think the boys should be practised in expressing themselves clearly and grammatically, but composition is greatly neglected in many of our schools.

1225. Would you have it in the form of an essay, or as a précis of despatches, say?—It might be an essay, or perhaps an account of some building or well-known object, incident or experience. By composition in these examinations I mean the simplest form of English prose.

1226. Do you regret the abolition of the preliminary?—Yes; I think it is a pity, so far as the Sandhurst boys are concerned, it certainly stopped

some hopeless cases. Those boys might get into the hands of unscrupulous tutors, by whom they would be encouraged to persevere till their very last trial, although the tutor knows it is no good. But the most weighty reason is that it provides a test for elementary subjects, such as writing, spelling arithmetic, geography, and geometrical drawing, the qualification in which would overburden candidates for the competitive.

1227. *Mr. Roby.* How often would you allow a boy to compete?—I think three times works very well.

1228. Do not you think two would be enough?—No, I think not.

1229. I understand you want to keep arithmetic out of these examinations?—Yes, because I think the number of subjects ought to be kept down as much as possible.

1230. Do you think that candidates know it too well now?—No, but I think they have more subjects than they can do justice to.

1231. Do you want boys to come into the Service without arithmetic?—No, but I want them to pass it early.

1232. Suppose there continues to be no preliminary?—Then it must come in.

1233. *Lord F. Hervey.* What is the use of their having learned arithmetic if they do not know it when they join the Army?—I think you may know arithmetic and yet not be able to pass in a paper which requires a certain number of sums to be done in a certain time. I have known first-class men, scholars of their colleges, fail in that subject in the Home Civil Service.

1234. *Mr. MacNeill.* Do not you think it would be useful in these examinations to know the names of the examiners, and so put the examiners under examination, as it were?—Yes, I think it is good thing to have the names of the examiners printed on the papers, it makes the examiners more careful, and it is guarantee of good faith highly valued by the public

1235. *Mr. Roby.* Suppose the examination papers were set by one, or two, or three persons, and looked over by a Board, would it be quite accurate to put the name of one at the top of the paper?—Perhaps not, but I think at the Universities the names of the examiners are always known, or at least they are always understood.

1236. *Sir H. Roscoe.* What is the proportion of boys going in for Woolwich as compared with those going in for Sandhurst with you?—About equal numbers, I think.

1237. And for the Woolwich examination, for the scientific arms of the Service, it would be more useful to take up scientific subjects, I presume?—Yes.

1238. Is that the case?—If we have to pass a boy into the Service, we simply consider what he knows and what he can do best in, and pass him as easily as possible under the requirements; we cannot consider what is good for him afterwards. We do not presume to lead the examination, we can only follow it.

1239. Practically, do the boys from Woolwich take scientific subjects?—No, not altogether; so much is made of Latin.

1240. If Latin were made optional do you think there would be more chance for the scientific subjects?—Yes, nobody would then touch Latin for Woolwich, except those who had had very good opportunities previously. The amount of Latin a Woolwich boy knows is practically useless for the purposes for which it is acquired, it does not count for a mark afterwards.

1241. *Mr. Roby.* Would you say 1,600 marks out of 2,000 for Latin is good?—Yes.

1242. What would you say to 1,000 out of 2,000?—It would be doubtful whether that knowledge would be useful afterwards.

1243. *Lord F. Hervey.* That remark about a subject not being of any use afterwards applies equally to English history, does it not?—I think English history is always useful in a soldier's career

1244. I mean for the Woolwich Course?—That is so.

1245. *Mr. MacNeill.* Do you think it would be expedient, or inexpedient, to have more than one examiner for each paper?—I think there should be two for each subject, and the judgment of both should be required on each paper. Even the most efficient and careful examiners are liable to make mistakes.

1246. Do not you think an examiner would himself be relieved by having the advice of a coadjutor upon a paper?—Yes.

1247. Then should there not be two examiners for each paper, even though the expense may be greater?—Yes, the fee is no object at all.

1248. Should the examination be applied as a test to provide the best Officers for the Army, or as a test of ability?—I think to provide the best Officers for the Army.

1249. Enlarging upon that, do you not think that as six out of every seven examined for Sandhurst fail, we ought to think of what would be most useful to the men who do not pass?—Yes.

1250. Then ought we not to reduce the examination to not so much an Army examination as to a test of ability, to separate the best men?—I think the knowledge most useful, for the Army Officer will be found to be most useful to men in other walks of life.

1251. I understand you consider mathematics essential to the career of an Officer?—Yes; as far as I understand fortification, for instance, the man who knew no mathematics would have no chance of getting on in that subject.

1252. Have you often, in preparing University candidates, known men who had a kind of gap in their minds as far as mathematics are concerned?—Yes, and there are a few even distinguished men who have been in that condition. With regard to the examination of Militia Officers, I think it would be a good thing if you allowed a voluntary literary or scientific subject to be taken up.

1253. *Mr. Roby.* Do you have many Militia candidates?—Last time we passed three out of four sent up.

1253*a*. Are they men who could not get into the Army in the usual way?—Yes.

1253*b*. *The Chairman.* Are they physically any better than the other candidates?—No, I think not.

[*The Witness withdrew.*]

TUESDAY, 28TH NOVEMBER, 1893

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Sir H. ROSCOE, M.P., F.R.S.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Lieut.-General Sir W. STIRLING, K.C.B., R.A., *examined.*

(*See* also Appendix XIV.)

1254. *The Chairman.* You are the Governor and Commandant of the Royal Military Academy at Woolwich, I believe?—Yes.

1254*a*. For how long have you held that appointment?—Since May, 1890.

1255. Have you anything to do with the instruction?—Yes, I have to do with everything that is contained in the syllabus.

1256. Have you anything to do with the appointment of Instructors?—Yes, when there is a vacancy I submit the name of a candidate after making enquiries with regard to him to the Commander-in-Chief for his approval.

1257. *Sir H. Roscoe.* Are all your Instructors and Professors military men?—No, at present the mathematical Professor and Instructors are all civilians. The Professors and Instructors in artillery, in fortifications, and in military topography are all Officers, In chemistry the Professor is a civilian, and the Instructor a Captain of Royal Engineers. In drawing the Professor is an Officer.

1258. *The Chairman.* With regard to the physical capacity of the boys, how does that compare with the capacity of the boys who came in when you first took up your position?—I cannot see that there is any difference between those coming now, and those who came formerly.

1259. Where were you quartered when you joined the Army?—I joined at Woolwich, and went through the course there at the Artillery Institution, and from there I went on to Chatham.

1260. You have had plenty of opportunities of observing these young fellows?—Yes.

1261. Do you notice any marked deterioration in the physical development of the boys compared with those you saw when you first joined?—No; I think the present ones are quite as good.

1262. Has it ever occurred to you whether a physical test examination could be introduced?—I think it would be a great advantage to have one if it were found possible to mark. At the last examination we had 142 boys who were qualified in the literary subjects, but we could take only 50, so that there were 92 turned away. The medical examination in the case of the 50 was simply a qualifying examination, and if a boy's chest measurement and eyesight come up to a certain standard he was passed.

1263. Have you any reason to suppose that those who failed to pass that examination were inferior to those who were successful?—They all qualified; but, as I did not see them, I cannot say whether there was much difference between them. From what I have seen of several batches, I must say that a certain number of boys appear to have been what I call worked out.

1264. Do those boys subsequently improve at the Academy?—Yes, very much; though many of them when they come to us appear to be lacking in physical development.

1265. Do you get any records showing the schools at which these boys have been educated?—Yes, we always have a record with each one of them, and we send in returns based upon those records; but we find a very great difficulty in classifying the boys in those returns, because the returns do not give the information they ought. There is a great difference between the boys of the larger public schools and those we get from such schools as the Portsmouth Grammar School and the Edinburgh Academy, where they attend only for the day.

1266. With regard to a boy's appearance of having done hard work, you see, on account of this examination, they may not get the same time to indulge in athletics as they would if they joined in the ordinary curriculum of their schools; therefore it seems that you cannot expect to get all the boys with a good physical development if they have been working hard for certain examinations?—No, perhaps not; but I think we ought to have some of the best physically-developed boys, because there are so many coming up.

1267. How would you set about a physical test examination?—I think that would be a very difficult thing.

1268. One gentleman has suggested giving 1,500 marks, dividing them in this way: 500 for the medical examination, 400 for riding, 200 for jumping, 200 for marksmanship with the rifle, and 200 for gymnastics; do you think that anything like that would be possible, or practicable?—If it could be done it would be a very good thing, but there is very great difficulty, for instance, in the marking riding, we have found that occur at Woolwich.

1269. Is that when they first join the Academy, or after they have been through a course?—After they have been through a course. Up till just lately the examination was always carried on by an outside examiner, who came up from Canterbury, but he found it so difficult to mark the boys whom he saw for the first time that ultimately the Superintendent took up the marking of the riding himself. Just a little time ago His Royal Highness the Duke of Cambridge,

when at the Academy, asked the question who gave the marks for the riding examination, and when he was told, he thought the new arrangement was not right. I have heard from the Superintendent of the Riding School at Woolwich, that when he goes to Sandhurst to test them there in riding, it is extremely difficult for him to do so, as he sees the candidates then for the first time.

1270. I presume, for the requirements of the Royal Artillery, it is necessary for a man to be a good horseman?—Yes, certainly.

1271. Do you think that jumping would be of any particular value in regard to testing the physique of an Officer entering the Army?—I think that riding, swimming and walking are the things that I should take for a test.

1272. How would you test walking, remembering that these boys have been working hard for the examination?—It would be very difficult to do nc doubt, but I think we ought to do it.

1273. Do you think that having a certain medical test, and adhering strictly to that test, would be sufficient, seeing the large numbers you have to deal with at present?—I do not see why we should be content with a qualifying medical test when we require a competitive intellectual test. Intellect to an Officer is useless without a good physique.

1274. *Mr. Roby.* With regard to those 142 boys, I presume there was a good deal of difference between those who got in at the top and those at the bottom who did not get in?—Yes, I suppose there was.

1275. Would you be disposed to sacrifice a good deal of intellectual superiority in order to get a greatly improved physique?—Yes, I think so.

1276. Suppose you took it in this way: take 25 out of the first 50, and let the selection of the next 25 be determined by the physical qualification?—That might be done, but I think there is this drawback to it; the order in which they stand as the result of the examination, to a certain extent, is a sort of lottery. If the course is altered by but a very little bit you will find that the order in the batch is at once completely changed. For instance, at present in our first class at the Academy the boy at the very top entered the 50th, that is the last on the list; and that is, I take it, simply owing to the different course that they work on in the Academy from what they were examined in when they came in. That change has taken place after only 18 months' work.

1277. Do you find that that is frequently the case?—We find this, that on the first examination in Woolwich a change does take place, but after that they settle down to their positions, which they keep all through.

1278. What is the nature of the first examination after they get in?—It is based on the course of study at Woolwich.

1279. Is it chiefly mathematics?—It includes mathematics, fortification, military topography, chemistry, drawing, and foreign languages, but no Latin or Greek, nor any English history or geography. The subjects that we do take are practically obligatory.

1280. Have you compared the order of the boys in your examination with the order they would have been in at the entrance examination if they had only taken the same subjects as you gave them; that is to say, supposing you took the marks at the entrance examination and deducted all those belonging to the subjects which you do not subsequently take, and then see if the order was very much the same as it would have been in the subjects which you do take up?—I have not done that.

1281. I should like to know whether it is on account of the subjects themselves or whether it is because a boy gets a little more time at them that he is enabled to do better?—I put the difference down to the alteration in the subjects.

1282. *Sir H. Roscoe.* Have you anything to object to with regard to the fitness of the entrance examination as at present constituted in the way of choosing out the boys best fitted for your particular purposes?—I cannot say that I have, but it does not necessarily follow that the 50 who pass top at the entrance examination are the best for us.

1283. Then under present arrangements you may be losing boys who would be better qualified for you than some who have passed?—Yes, I think the 100th boy might be just as good as the 50th for our purposes, and in fact he might take the 50th place if he were allowed to go into Woolwich and compete on the Woolwich syllabus, where we find that boys who are at fortification and drawing get on very well.

1284. *Mr. Roby.* Does fortification consist mainly of mathematics and drawing, or is it simply drawing?—Field fortification is mostly drawing.

1285. *Sir H. Roscoe.* Are there any suggestions which you have to offer as to any alteration of the list of subjects so as to avoid the present evident drawbacks?—I do not know how the entrance examination scheme was drawn up and, therefore, I cannot quite say, but it is clear to me that the examination at the entrance does not always get for us the men who would really do best in the course at Woolwich.

1286. Then it appears that the entrance examination and the course at Woolwich do not run quite parallel?—That is so.

1287. Would it be desirable, do you think, that if possible the entrance examination should be made to fit in more with your system of instruction than it does at present?—I am hardly able to answer that question, because Latin and Greek come into the entrance examination, and I am not quite sure upon those subjects.

1288. *The Chairman.* Are you prepared to say whether you approve or not of the present subjects taken up in the entrance examination?—I cannot say that I disapprove of them.

1289. Supposing there were no obligatory subjects in the entrance examination, and we allowed the boys to choose from a certain number of subjects, would it not be likely that they would take up such subjects as would be of use to them in the Academy afterwards, and so coincide with your curriculum there?—I think it is possible they might do so.

1290. *Mr. Roby.* Taking the order in which they appear afterwards in your examination, does that order correspond, do you think, to the general intelligence and usefulness of the candidate?—I am not quite prepared to say that, but I think it is a better course for the requirements of the Service.

1291. Do foreign languages enter largely into your examinations?—Yes, and I think too largely, especially in the case of French and German.

1292. *The Chairman.* Is not that likely to be modified now by the alterations suggested by the Committee on Electricity?—Yes.

1293. Have you had any complaints made to you from your Instructors or Professors as to the boys not being up to the mark?—Not generally; but in little things they have frequently complained; for instance, they speak very strongly of the way in which the boys use logarithms.

1294. That can hardly be looked upon as a result of the entrance examinations, can it?—We think at Woolwich that the entrance examination should be such as to ensure that the boys understand logarithms before they come to us.

1295. *Mr. Roby.* Cannot you teach them logarithms at Woolwich?—They are taught there, but only for the first year in the case of the Artillery. The syllabus is rather high, and it does not devote much time to logarithms; at present some of the logarithm tables are put down in such a way that I am told it is impossible for anybody to make them out. The fortification people are complaining that the work done in the way of geometrical drawing is very untidy, and they think that the entrance examination should be more strict upon that point. The Professor of Chemistry also says that with regard to the teaching of electri-

city he thinks the boys ought to take up some study in physics before they come to Woolwich.

1296. *Sir H. Roscoe.* Would you like to see one science at least made compulsory?—The Professor suggests that, and I think there is something in it. I think the boys should get their heads on that subject before they come to Woolwich; he says if they did it would be a very great help to him.

1297. Is there any want, in your opinion, in the teaching of the higher branches of electricity?—We have only just started practical electricity in the new course, and I am not prepared to give any opinion with regard to it yet.

1298. *Lord F. Hervey.* Have you had any complaints made to you, by your Professors or Instructors of mathematics, respecting any falling off in the number of candidates who take up higher mathematics in the entrance examination?—No, I have not.

1299. Do you know that there is such a falling off?—I was not aware of it.

1300. What is your opinion as to the age at which candidates should enter Woolwich, do you think that the present limits, 16 to 18, are the best that could be devised?—I think so.

1301. Would you like to see it made the same as the Sandhurst limit?—No, I would not; you see the boys are at Woolwich on an average between 17 and 19 now.

1302. *General Sir W. O. Lennox.* Would it be advisable to put the calculus into the entrance examination as a voluntary subject?—I think not.

1303. *Mr. Roby.* Do you think more stress should be laid upon logarithms in the examination?—Yes.

1304. Is there any other branch of the examination that seems, from your later experience, to be neglected?—I think more attention should be paid to geometrical drawing.

1305. *Lord F. Hervey.* Geometrical drawing is to be put into Class I. from June next?—That may meet the case.

1306. *Mr. Roby.* Is the unsatisfactory physical appearance to which you refer only a temporary matter, and does it very soon disappear?—Yes, the candidates improve very much after they have gone through the course of gymnastics in their first term at Woolwich; they show a decided improvement in chest measurement, and in the measurement of the forearm and upper arm.

1307. *Lord F. Hervey.* Do you give marks for gymnastics at Woolwich?—No, not at any part of the course, nor do we give any marks for riding; we give marks only for literary subjects. The returns for a class of 50 during the gymnastic course of the first term in 1893 show a maximum increase in weight of 17 lbs.; or an average increase of 4½ lbs., and an average increase of 1½ inches round the chest. I think the food has a great deal to do with that, because many of the boys when they first come have an appearance of not having been properly fed.

1308. *Mr. Roby.* Then where do they come from?—From all sorts of places.

1309. *Mr. Whitmore.* Do those boys ultimately arrive at a proper standard?—Yes, they must be at least 5 feet 4 inches in height, and 33 inches round the chest.

1310. *The Chairman.* Is that high, taking Englishmen all round?—We have 50 cadets in the Academy at present who were slightly under this standard when they joined.

1311. Do you ever turn boys out because they do not come up to that standard?—I do not remember such a case, the above standard has been fixed during the last two years.

1312. *Mr. Roby.* Do you take undersized boys in the hope that they will grow during the course of two years?—We have boys in the Academy on that footing.

1313. Then if they do not grow sufficiently all your trouble is for nothing?—They are admitted on the understanding, that if they do not come up to the proper standard, they will not be considered eligible for commissions. They come in at their own risk. With regard to the subjects dealt with in Woolwich, I should like to say that since I went there in 1890, there have been only five boys removed, because they failed to master the subjects.

1314. Do you find a great deal of inequality existing amongst the boys themselves; do you, for instance, find the mathematical fail in the languages, and the linguistic fail in the mathematics?—No, but we find a great deal of difference between the top mathematical boy and the bottom mathematical boy.

1315. Do the Instructors complain of having great variety in one and the same class?—No, I think not.

1316. *General Sir W. O. Lennox.* The "dropping" as we may call it, is not always from inability to master the subject, idleness may be a cause, may it not?—It may be so, but the number is so small that I think it is insignificant.

1317. *Mr. Roby.* What is the amount of intellectual instruction in work that the cadets get at Woolwich?—The general amount is 5¼ hours a day, but if they take up the voluntary subjects, it amounts to 6¼ hours a day. Besides that, they do a lot of work outside, such as drilling, riding, gymnastics, &c.

1318. Then may we take it that 6¼ hours is the total amount of work a boy is to do, or will do?—Yes, speaking generally, but there are many of them who work in their own room, especially at the end of the first year, when they are trying to get into the Engineers.

1319. Do they nearly all aspire to get into the Engineers?—Yes, I think so.

[*The Witness withdrew.*]

Lieut.-General R. GRANT, C.B., R.E., *examined.*

1320. *The Chairman.* You are the Inspector-General of Fortifications and of Royal Engineers, I believe?—Yes.

1321. Can you say how most of the cadets get into Woolwich?—Some come in from private tutors, but the great majority of them come from public schools, such as Wellington.

1322. Do you ever get any Officers in the Engineers excepting through Woolwich?—About seven years ago, on the occasion of the augmentation of the Engineers, when Woolwich could not supply all the men we wanted, we got 20 officers by open competition; about 15 came from Coopers Hill, some from the Royal Military College at Kingston, Canada, and three from the Trinity College, Dublin. One commission is also given annually to the Royal Military College, Kingston.

1323. Did they pass the same sort of examination which the Engineers pass on leaving Woolwich?—No, they were all taken practically on nomination

The cadets from Kingston College had to bring certificates that they had passed the *final* examination there; the Officers from Coopers Hill were taken upon the certificate of the General Officer, the Head of the College, that they were fully qualified in arts and engineering and up to the requirements stated; the three Officers from Trinity College, Dublin, had all taken their degrees in arts and engineering, and passed their further examinations.

1324. Were you able, by means of comparison, to form any idea as to whether the Officers you got in that way were superior or inferior to those you get usually from Woolwich?—They varied, but on the whole they were rather better; they had a higher standard of work, and more knowledge of what we require in the Engineers.

1325. Do you think that system could always be followed?—Not without previous notice, because we want certain qualifications, and unless we give the public notice some years previously we shall not be able to get the class we want by open competition. The great problem is to produce the class we want at a certain age. 20 is the extreme age at which we get Officers out of Woolwich, but those we got by open competition were about 22, excepting those from Coopers Hill, who were a little younger.

1326. When the candidates get into Woolwich what is the line in which you find them deficient?—Mathematics, drawing and science.

1327. *Lord F. Hervey.* Are they still deficient in those subjects when they have gone through their course at Woolwich?—Yes, the reports I get from the Engineers at Chatham show that a certain number are so deficient that they cannot get the full benefit of the course there, and so much of the time spent at Chatham is wasted.

1328. *The Chairman.* Would you say that that is owing to the course at Woolwich being not quite the correct one, or would you say that we could get the boys we require by altering the subjects at the entrance examination?—I think you must begin at the beginning; we find that many of the boys coming to us are especially deficient in electricity.

1329. *Mr. Roby.* What particular branches of mathematics are specially required?—Our Officers are required to understand surveying, astronomy, electricity and construction, and for some of these you want mathematics of a high class. In higher astronomy spherical trigonometry comes in, and we must have some Officers capable of that, because sometimes we have to send men out to observe eclipses of the sun, and to fix latitudes and longitudes. The Ordnance Survey is worked entirely by the Officers of the Engineers.

1330. *Lord F. Hervey.* Does astronomy in its mathematical aspect form one of the subjects taught at Woolwich?—It did in my time.

1331. *Mr. Roby.* For the Army generally you would hardly expect such knowledge as that, would you?—Perhaps not, but in the Engineers we are expected to find a man for any work that is going.

1332. *Sir H. Roscoe.* Is there any way in which the entrance examination could be altered to suit your purposes?—I should like to see the mathematics higher, and I think that physics, up to a certain point, should be made compulsory.

1333. Would you, in any revised scheme, make mathematics compulsory?—Yes, I think it is essential. I think the compulsory mathematics at present are fair enough, but I should like to see the higher mathematics taken a little further in the entrance examinations.

1334. Would you like to see the calculus included in the list?—Yes, certainly; I would make it a voluntary subject.

1335. *Lord F. Hervey.* How would it meet your views if the higher mathematics in Class II. were divided into two branches, each counting 2,000 marks, and allowing the candidate to take up both branches if he pleased?—I think I would prefer to keep it as one branch, but I would give 3,000 marks instead of 2,000,

1336. If you took that course, and left mathematics in Class II., you would deprive the candidates of the freedom you profess to give them; you would quite upset the principle of the class, because all the other subjects are marked 2,000. But if you divided it into two branches, giving 4,000 marks for the whole, you would not deprive the candidates of the freedom they now possess in being able to take up two subjects in that class?—Perhaps not; but supposing you got a boy who was a good mathematician and a good German scholar, you would shut him out from all the value of his German, because, if you divided your mathematics in that way, you would force him to take up both branches of mathematics and leave his German out, or he would take up only one branch of mathematics and German.

1337. But how would he be any worse off than any other candidate? He could still get the maximum 4,000, and no one could get more?—I think we should give encouragement to boys to give us what we want, and it seems to me you ought always to give a boy credit for what he knows.

1338. *The Chairman.* How would you like the whole field thrown open, and all the subjects marked equally?—I think there are some subjects which must be obligatory, or you would upset the whole of the method of teaching at Woolwich.

1339. *Mr. Roby.* Which would you select as the obligatory subjects?—Mathematics, and one language, French or German.

1340. *Lieut.-General Sir R. Gipps.* Why not two languages?—Because, I think, it is too much to make two languages obligatory. The other subjects I would make obligatory would be English, in some form, perhaps composition and history together; geometrical drawing, which I should like to see go a little further than at present, and include descriptive geometry, and physics, including electricity and heat.

1341. *Mr. Roby.* Do you lay any stress upon freehand drawing?—No, not if stress is laid upon geometrical drawing, because so many people are naturally bad draughtsmen that I do not think you can ever expect them to take up freehand drawing. I should leave freehand drawing in Class III., as now.

1342. *The Chairman.* Would you still let them take two subjects out of Class II.?—Yes. If they were a little older, I should say three subjects; but, up to 18, I think you must not expect too much. I should put Latin in Class II., and chemistry in Class III. I think the subjects I have classed as obligatory are the most important for the Artillery as well as the Engineers, for it is quite impossible for an Artillery Officer nowadays to understand the higher problems of gunnery without a considerable knowledge of higher mathematics; he must understand something about steam and hydraulics, as they play such an important part in the movement of guns; he must also understand electricity, because the whole of the position-finding arrangements are worked by electricity.

1343. *Sir H. Roscoe.* Do you consider it necessary, in view of their after studies in electricity, that candidates coming to you should know something of electricity?—It is not absolutely necessary, but it is most desirable if you can get it.

1344. Would you rather examine them in electricity instead of chemistry in the entrance examination?—Yes; I think if we are to have any subject compulsory at Woolwich it ought also to be compulsory at the entrance examination; and at present out of a body of, say, 60 candidates, probably only 20 take up electricity.

1345. Do you think a knowledge of chemistry is necessary at all?—I think it is desirable, but not necessary.

1346. *Mr. Roby.* In regard to usefulness, have you any particular choice as to French and German?—No, I think they are equally useful; the military literature of both languages is very extensive, and both in the Academy and in the service generally those languages are of great use.

1347. Supposing a person knew French, would he be at all likely to take up German as knowing French, and *vice versâ*?—I think not, because I think French is easier to learn than German, and the lighter literature of the French is much more attractive to youths than that of the German.

1348. Do you think that it is desirable to make German compulsory?—No, I would leave it optional.

1349. *The Chairman.* Do you think that the examination for Woolwich should be of a more special character than the examination for the rest of the Army?—Yes, I think so, for certain subjects; the cadets there want more mathematics and more drawing. An Officer of the Infantry or Cavalry has no particular use for mathematics in the same way that an Officer in the Artillery has.

1350. Do you think it would be sufficient for the general Army to have an examination merely testing the general intelligence of the candidate?—Yes, I think so.

1351. Would you see any objection to putting the examination on a different basis; that is to say, giving five obligatory subjects for Woolwich, and making the examination for the rest of the Army different from the Woolwich range?—I see no objection to that, though I have not thought the matter out.

1352. *General Sir W. O. Lennox.* The men who fail for Woolwich now go up for Sandhurst?—Yes, but I do not know that you improve your Cavalry and Infantry by taking the Woolwich failures.

1353. *Mr. Roby.* Do you lay much stress upon physical geography?—The whole thing turns upon what you can teach a boy up to a certain age; a knowledge of physical geography is very desirable because it is connected with campaigns.

1354. Is it a subject upon which you lay great stress?—No, I look upon it as a luxury and not a necessity.

1355. Do you often come across cases of great ignorance in Officers with regard to geography?—I do not know that I have as a rule, I should think Officers know more of geography than other public servants.

1356. With regard to English composition would you like to see more stress laid upon reports and précis writing?—I think if a man can logically arrange his thoughts and express them, you get all you want.

1357. So much depends upon the kind of paper; if you give a person simply an essay to write you may get fine writing but not necessarily logical accuracy?—Mark him accordingly then. I think a knowledge of general English only should be looked for in the entrance examination, leaving the Officers to learn how to write reports when he gets into the Service.

1358. *The Chairman.* Would you give marks for physical development?—I should do so most unhesitatingly, and I should like to see that done at the entrance examination, for I think the very first requirement of a soldier is that he should be perfectly fit for his work, all the intellect he may have is absolutely useless to him unless he has power of physical endurance. For instance, it is absolutely necessary for an Engineer Officer to be able to ride, he must travel about wherever he is wanted, and if he cannot ride he is comparatively useless.

1359. *Mr. Whitmore.* Do you find that any large proportion of Officers are physically unfit?—I think we have a very fair level, though some of them cannot ride well.

1360. *The Chairman.* Do you think the present medical test is sufficient if it is thoroughly carried out?—That is a test for constitutional fitness, rather than a test for physical fitness, I think; it rather shows that a man is sound in wind and limb, but it does not show what he can do.

1361. Supposing the medical test were properly carried out, do you think you would know all you want to know about these young men?—I do not.

1362. How do you think it can be improved; would you mark for physical development to begin with?—Yes.

1363. One gentleman has suggested giving 1,500 marks for a physical test, and dividing them in this way: 500 for a medical test, 400 for riding, and 200 each for marksmanship, running, and jumping; would you agree to that?—I am not prepared to say how I should divide the marks, but I think marks should be given for such an examination. I would not give a boy marks for being a good cricketer, because that is not a military subject, but I would certainly give marks at the entrance examination for Woolwich for riding and running and fencing.

1364. *Mr. Roby.* Would you apply that to all the candidates, or only to a part of them?—To all, both for Woolwich and Sandhurst.

1365. Would you do it merely by an anthropometric test?—No, but I would let that count. I would make it a competitive test.

1366. *The Chairman.* Do you want to get the biggest men?—No, I do not care how small they are so long as they can ride, and shoot and run. Mere size does not matter very much to an Engineer Officer, except under very exceptional circumstances. It is far better for him that he should be a good swordsman and a good shot rather than merely a strong man.

1367. *Mr. Roby.* Would you give marks for skill in shooting at the entrance examination?—Yes.

1368. *Mr. Whitmore.* Cannot skill in all the subjects be acquired in a Woolwich course?—Not always. I think that nothing can make up for the absence of things which should be taken up in youth; a boy who is to be a rider should begin young. Even the course of musketry for Officers of Royal Engineers after they get in, I think, is insufficient. I should like to see them continue it, but they have too much to do.

1369. *Sir H. Roscoe.* Do you think that it is possible to differentiate fairly well the riding powers of 800 men?—Yes, I think so. I look upon all these matters from the point of view of active service, and I think all our training in peace time should be such as is calculated to make an Officer thoroughly fit for all the calls of active service. Those calls are very heavy; an Officer of the Royal Engineers has to be constantly ready to go all sorts of distances, to make reports, to design works, to lay them out; in fact, he must be practically ready for anything, and for doing that, he must be physically as well as intellectually qualified. Physical qualification is equally necessary for the Artillery Officer. With regard to the medical examination, I think rather too much stress is laid upon having the eyesight of boys perfect in both eyes. I have seen boys with practically very good eyesight, although they were not perfect in both eyes.

1370. *General Sir W. O. Lennox.* Do you know what the examination for naval cadets is?—Theirs is much more stringent than ours. I think the eyesight is more important in the Navy than in the Army.

1371. Would the expansion of the chest be a great point with regard to any test of endurance?—We want boys who are sound in wind and limb, not merely physically strong; we want an Officer to be a man who is active, and constitutionally sound, and able to ride and shoot.

1372. *Mr. Roby.* Are our Officers better now than they were?—Better, I think.

1373. *Lieut.-General Sir R. Gipps.* Do you think the present system of examination gets us the men who are likely to make the best Officers; do you think we should get as good men as now, with a high literary examination, if we took all the men who qualify?—I think you would get some men who would make very good Officers, though I think the examination is not very high at present. I consider that the standard of work at public schools is somewhat low.

1374. *Mr. Roby.* Do you lose any good men in the sense that inferior men get in?—No, I should not

like to say that; I do not think we get book-worms in; the Officers I see, are very good. When I said we got men in from the outside, who were in some ways better than those who come from Woolwich, you must remember that they had to some extent learned their profession—that is, their Engineer work—before they came into the Army, so that when they came into the Service, they had only to apply practically the knowledge of their profession which they had learned outside. Men in their position are always more likely to work well than others who come in from Woolwich, because it is not like going to school again. The cadets who go from Woolwich to Chatham feel like going to school again, and they do not like it, they look upon it as drudgery, and, therefore, in some respects rather fight shy of the work. Of course, we might get better men than our present men, by adopting a system of open competition, but looking into the subject generally, and having regard to the results of the various Committees who have represented most strongly the necessity and desirability of Officers of the Engineers and Artillery being closely connected in their early military education, I should be sorry to see any alteration of the present system in that respect. I think, however, the standard on entrance should, in certain points, be higher than it is at present.

1375. Then would your inclination be not to aim so much at getting them from the public schools?—I would not say that, I would aim at getting them from wherever we could, and aim at getting the best article we could. I look upon the corps to which I have belonged as offering, from a parent's and from a candidate's point of view, the best profession in the country. The pay is practically better than in the rest of the Army, and the openings are better, too, for work outside the Army, and, therefore, I believe, if the considerations on the other side were not so great, that it would be the wiser thing to throw open the entrance to the Royal Engineers to open competition.

1376. In some of the reports very much stress is laid upon getting candidates for Woolwich from the public schools, do you attach great importance to that?—No, I think in many ways the candidates get better teaching at the crammer's, especially if the crammer is a very good man; he has fewer in his class and he makes the boys work harder; but I hope the practice will still continue of boys coming to us from the public schools. Their tone as a rule is better. One great drawback attaching to the present "Army classes" is the amount of work they have to do. At Harrow, for instance, they have more work in the Army class than the other boys in the school, and that alone makes them rather dislike it.

[*The Witness withdrew.*]

Colonel C. J. Burnett, C.B., *examined.*

1377. *The Chairman.* You are the Assistant Quarter-Master-General at Head-Quarters, I believe?—Yes, I was formerly in the 2nd Bn. East Yorkshire Regiment, and afterwards I commanded the 1st Bn. Royal Irish Rifles.

1378. Have you seen any foreign service?—Yes, on the West Coast of Africa and in Afghanistan.

1379. When did you join?—In July, 1861.

1380. Do you find that the physique of the young men joining now is inferior to what it was when you joined?—Most certainly not.

1381. Have you lately been employed in the Autumn Manœuvres?—Yes.

1382. Has your experience of the Officers been satisfactory on those occasions?—Yes, they have done as well as ever they did; I have seen them carrying two or three rifles while marching with the men, and I cannot recollect a single instance of an Officer falling out. I think we have a bigger class of Officer now than we had when I joined the Army, and from what I have seen of them on foreign service, I consider that they have done their work and stood their work right well, and there has been no want of physical and bodily energy on their part.

1383. Have you formed any opinion as to the advisability, or otherwise, of imposing a physical test?—Yes, when the idea was first mooted I was rather bitten by it, but mature consideration has induced me to go round to the other side. All that is wanted is a sound mind in a sound body. A medical examination, if it is practically and properly carried out, gives the sound body, and the standard of education which is insisted upon gives the sound intelligent mind. I cannot see any advantage in giving marks for riding, shooting, swimming, and things of that sort.

1384. Do you think it would be misleading, or do you think it would give an advantage to certain persons?—I think you must bear in mind that you are getting into the ranks of the Army now men of superior intelligence, and the more intelligent the rank and file become, the more intelligent should be the Officer who has to command them.

1385. *Mr Roby.* Do you think that the rank and file of the Army would respect an Officer more for his intellect than for his physical ability?—Yes, what we want is the best man for the money. It is not because a man can run and shoot that he can save men's lives, but because he has the ability and the intelligence to do it.

1386. *The Chairman.* Do you think that if the medical test were thoroughly carried out it would be sufficient?—Yes.

1387. Do you think the test for eyesight should be normal?—I think all soldiers should have good eyesight.

1388. Would you say that with regard to short sightedness?—That is rather a difficult question to answer, because glasses are so much used nowadays; still I think I would insist upon the sight being normal; that is to say, every man should be able to distinguish what was going on in the field.

1389. With regard to the medical test, would you be inclined to give a little latitude, and take a boy in on the chance of his growing at Woolwich or Sandhurst?—No, I should say we have had quite enough of that sort of thing in the case of our special recruits.

1390. *Mr Roby.* From your own experience, are you inclined to lay particular stress upon some subjects more than others in the general examination?—I think a man ought to know a good deal about mathematics, and he ought to have a fair idea of the classics, especially Latin.

1391. Do you think that Latin is of much use to men in the Army?—Yes, I think it is most useful to every man.

1392. Do you think it can be made up for by a proficiency in German or French?—Modern languages are accomplishments more or less, but I think Latin is necessary for every man if he wants thoroughly to understand his own language.

1393. Do your Officers require much knowledge of drawing?—It is very useful if a man can illustrate a report by means of a sketch; geometrical drawing, I think, is purely mechanical.

1394. Have you anything to say with regard to the sciences?—Speaking generally, I think a man is more useful with a knowledge of them than without it.

[*The Witness withdrew.*]

Surgeon-Lieut.-Colonel W. C. Gasteen, M.B., *examined.*

1395. *The Chairman.* You are the Medical Officer at the Royal Military Academy, Woolwich, I believe?—Yes.

1396. For how long have you held that appointment?—Since February, 1890.

1397. Where were you before that?—In medical charge at Enniskillen, and previous to that I was in Cyprus.

1398. What is your opinion with regard to the physical qualities of the young men now entering Woolwich Academy?—A considerable number are not of sufficiently good physique, their muscular development is not what it should be, and generally they appear to be intellectually overworked.

1399. *Mr. Roby.* Does not that go off in a few months?—No, not always, though the majority do improve in the first term, especially in the summer season, when they have a great deal of outdoor exercise in addition to their drills.

1400. Is it a want of outdoor exercise that they show when they come to you, or is it a want of food?—It is not always easy to say. In the majority their anæmic appearance is, I believe, the result of insufficient outdoor exercise, excessive mental strain, and injudicious living.

1401. *Lord F. Hervey.* Would tobacco have any effect in producing this result?—Yes, and I always try to induce the lads to discontinue the use of it.

1402. Do you know what number of hours they work during the months immediately preceding the entrance examination?—Some of the candidates have told me that they have worked on an average 8 or 10 hours a-day over a considerable period of time.

1403. Would they be lads coming directly from the public schools, or would they be from the crammers?—Rather from the crammers, I think.

1404. *The Chairman.* Would not all that work tend to affect their muscular development?—Certainly.

1405. Do they improve while at Woolwich?—Yes, very much; they get a lot of outdoor exercise, in the way of field sport and in gymnastics; gun drill also entails a good deal of muscular exertion. Riding is capital exercise, but it comes a little later on.

1406. *Mr. Roby.* Are the hours regular at Woolwich?—Yes, perfectly so; reveille, 6.15; breakfast, 7.15; studies and drill, 8.15; luncheon, 1.30; dinner, 7.30.

1407. *Sir H. Roscoe.* Would you be in favour of having a compulsory competitive physical examination on entrance?—Yes, certainly.

1408. How would [you conduct it?—There would be some difficulties to overcome, but the details could be satisfactorily settled by a medical committee. Marks should be given for superior physique and physical capability.

1409. With 800 candidates?—It would certainly take a lot of time, I have not considered the details, but the principle is perfectly sound.

1410. *The Chairman.* Do you consider that the medical requirement of 33 inches round the chest is sufficient for 5 feet 4 inches in height to provide good useful young men for Officers?—Yes, but it should be made to operate in relation to height; for instance, a cadet 6 feet in height is allowed to pass if he attain the minimum 33 inches round the chest. I think the standard ought to follow the requirements laid down for the ordinary recruit, that is, that a cadet of 5 feet 6 inches in height should have a chest measurement of 34 inches, instead of 33, and a cadet of 5 feet 10 inches in height ought not to be passed if he has a less chest measurement than 35 inches.

1411. But are not the ages for ordinary recruits different from those laid down for entrance to Woolwich?—Yes, 16 to 18 for the Academy, and 18 to 25 for the Army.

1412. Do boys develop much between those ages?—Yes, they increase in chest measurement as well as in height between 17 and 19, they grow generally.

1413. Would not your suggestion tend to give more latitude to medical examiners to let in young fellows on the chance of their growing?—No. On the contrary, it would raise the standard of chest measurement for candidates over 5 feet 4 inches.

1414. Would not your proposal tend to extend that indulgence, as it were, as I understand you would like to have a sliding scale; that is, a certain chest measurement should be proportionate to a certain height?—I would make the examination for cadets much more searching than it is at present, and in accordance with the sliding scale above specified.

1415. Would you make it absolute, and not allow anybody in except of a certain standard; that is, would you accept or reject a man on his measurements?—Yes.

1416. Are you satisfied with the class of cadet coming in now?—Yes, with the majority, but by no means with all, as some are rather weedy.

1417. Do the weedy ones improve with the regular exercise and food which they get at the Academy?—Yes, undoubtedly.

[*The Witness withdrew.*]

Mr. W. A. Shenstone, *examined.**

(*See* also Appendix XV.)

1418. *The Chairman.* You are one of the masters at Clifton, I believe?—Yes.

1418*a*. *Mr. Roby.* What subjects do you teach? I teach Chemistry only.

1419. *Sir H. Roscoe.* Have you had considerable experience in preparing candidates for the Army examinations?—Yes.

1420. How many boys have you in your Army class?—Fifty, on the average. That, probably, seems small, because the boys are not put into the Army class unless they are going into the Army.

1421. What is the total number in the school?—About 600; but, in the college as distinct from the Junior school, 450.

1422. At what age do the boys enter the Army class?—The average age would be about 15½ with a tendency to fall. There is an entrance examination for the Army class chiefly based upon mathematics, the ordinary education being judged by the boys' position in the school.

1423. Have you any objections to make with regard to the Army examinations as they at present exist?—Yes; it seems to me that they do not sufficiently consider the positions of the candidates after they succeed or if they fail. For instance, those who get into Woolwich will afterwards depend for their success largely on mathematics, German, and science, and the present examinations do not sufficiently consider the last subject. Then, again, I consider that, upon the whole, there is too much power of selection of subjects.

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* Mr. Shenstone subsequently explained to the Chairman that it was desirable that his evidence should not be understood to be that of a witness interpreting the views of the headmaster and staff of Clifton College, or specially representing the interests of that school.

1424. What, in your mind, is the object of these examinations?—It would seem to me that they are meant, primarily, to discover the right people for going into the Army. It has always seemed to me that the principle laid down by Lord Macaulay's Commission in connection with the Indian Civil Service examinations should also apply to the Army examinations. This principle was: that no candidate who enters for these examinations (that is, the Indian Civil Service) and fails ought to regret having prepared himself for the examination to whatever profession he may betake himself afterwards. I take the meaning of that to be this. Supposing a candidate goes in for an examination on mathematics, science, Latin, Greek, and drawing, and fails, and afterwards wishes to go into commerce, he may be a great deal handicapped by not having taken up German.

1425. How would you propose to remove this objection?—I should make it a nearly closed examination which should include the three chief branches of education, namely, mathematics, literature, and science; that is, I should recommend an examination in which a candidate had, so to speak, a compulsory opportunity of showing some knowledge of mathematics, literature, and science. Mathematics for Woolwich now take up a very large portion of the candidates' time, it amounts to something like 14 hours out of a school week of 28 hours, and in cases where boys are backward they may want even more.

1426. *Lord F. Hervey.* Is that for higher mathematics or only for the obligatory mathematics?—It is found to be desirable that the boys should take up higher mathematics together with obligatory mathematics. I ought to say, perhaps, that in our school a large proportion have taken up higher mathematics. My suggestion with regard to the subjects for the Woolwich examination would be mathematics, German, and science as compulsory subjects, with a choice of any two of French, Latin and Greek. I would leave drawing on its present footing; it is optional, but the boys, practically all of them, take it up. For Sandhurst I would recommend mathematics, German and French as compulsory subjects, with science, Greek, Latin and history as optional subjects, a choice of any two being permitted.

1427. At the present time there is no instruction given in modern languages at Sandhurst, nor is there any given in Greek or Latin?—Then it is all the more important that they should learn some modern language. before they go there.

1428. *Sir H. Roscoe.* Why do you particularly prefer a closed examination, as you call it, to an open one?—An open one compels the candidate to look out too much for the subjects that pay, and allows him too little to consider what subjects of education will be most useful later on in life, whether he is successful or whether he fails. It is extremely difficult to get equal marking on several different subjects, to get examiners to set papers which shall be of equal value. The result is that the candidate's success depends to a very great extent (that is where there is a long open list of subjects) on the judgment of his directors or tutors, in spotting the right subjects to take up. In a place like Clifton, where they may hate doing that, they must still be very careful to consider what will be best for the boy's interest, and what they think will pay best.

1429. Then does it come to this, that as you have to get a boy in you will choose the line of least resistance?—Yes, that is so. Teachers are deflected from considering the boys' future prospects, they go in for mark hunting, and they cannot help themselves. The parents themselves watch the marking very closely, and the consequence is, that rushes occur on this subject or that; for instance, for the Sandhurst examination of late the rush has been upon history.

1430. *Lord F. Hervey.* How does that square with the fact, to which we have testimony, that English history is badly marked?—That may be so for getting high marks, but it is easy to get useful marks in that subject. I have in my mind a candidate who, I am told, offered higher mathematics and got very few marks; he saw that he had very little hope in that subject, so he took up history, and having a good coach, managed to get very useful marks in history in a few months.

1431. *Mr. Roby.* Do you think it would have been better for that boy to have taken up higher mathematics?—Yes, for I think it would have been more useful to him in his profession as a soldier. I think it is a pity to deflect a boy from a subject which is professionally important, to one of less importance. He probably will have forgotten all his history in a month, or perhaps a week, whereas the mathematics would have stuck to him and been useful to him afterwards.

1432. *Lord F. Hervey.* Are we to take it that your view is, that history may be so taught, and is so taught, as to enable the boy to get very useful marks in it with a small amount of work, and with a small practical result afterwards?—Yes.

1433. *Sir H. Roscoe.* Your suggestion involves an increase to the present number of subjects, does it not?—Yes, it will add one subject.

1434. Do you think then that all subjects could be brought to the same standard as at present?—If the present standard in mathematics is maintained, I think you would have to slightly reduce the standard probably in German science, and French. The science papers set in the examinations of the past appear to me to be at a higher and harder standard than the papers set to the candidates after they get into Woolwich.

1435. *Lord F. Hervey.* The reason for that is that science being entirely voluntary probably only a small proportion of the Woolwich candidates have taken it up?—Yes, but if it were compulsory it would only be necessary to require a less knowledge such as you now require at Woolwich, though perhaps you might require something rather higher than that. I have had no experience of teaching French and German, but I gather that you might, to a certain extent, relax the questions on literature, because it would be better to examine a boy only on what he has read instead of examining him on what he had read about.

1436. *Sir H. Roscoe.* Have you anything to say with regard to English?—I have not overlooked that subject, I think a candidate could not pass the examination at all unless he had an all-round English education. I think composition and spelling, &c., might be marked from the other papers.

1437. Would you recommend précis writing?—I had not considered that subject, though I think you would be doing a good thing if you gave a moderate mark, I think it would be a mistake to mark it highly, but I think if a small mark were given it would encourage the clever boy.

1438. Where would you put that?—In Class 1, I think, as a subject without any fixed minimum.

1439. Is that subject taught at all in your class?—No, not for the final examination at any rate.

1440. Why do you make German and science compulsory for Woolwich?—I make German compulsory because I understand from Officers in the Army that the modern language which is invaluable to a soldier now is German. That has led me to think that it would be desirable to change the places of German and French, and I have been the more led to do that because I have heard competent judges say that German offers the better education of the two.

1441. Is German taught as largely and as well as French in your school?—Not quite so largely, I think. With regard to science, my reason for making that so strong for Woolwich is that it seems to me that you want to throw towards Woolwich the scientific type of candidate, and towards Sandhurst the modern language type; that is, speaking broadly of the two classes of boys. Another point is that, by making science compulsory, a great deal of time at Woolwich would be saved. For instance, it would prevent the

necessity of a cadet during his first two terms at Woolwich doing elementary chemistry such as is now done in the fourth and partly in the third forms of some schools.

1442. Are we to take it that the level of the subject as taught in Woolwich is only that of the ordinary elementary schools in the sixth and seventh standards, whereas if the subject were required for the entrance examinations such elementary work would give place to better instruction?—Yes, much of it, and then the whole time that is now given to elementary chemistry at Woolwich could be given to electricity. Electricity is likely to be so very important in the future that I should advocate clearing away this elementary chemistry, so as to enable the course in electricity at Woolwich to be double as long as it is at present.

1443. *Mr. Roby.* Are you proposing to put electricity into the entrance examination?—No. I should recommend for that, chemistry and elementary heat, both being somewhat more elementary than they are at present, or it might be chemistry or electricity. From the point of view of the schools, chemistry and heat would be the best arrangement, because the smaller schools can teach heat well; and from the point of view of the Service, you may defer the electricity.

1444. We have had some evidence that the two branches which would be most useful to the Engineers would be heat and electricity?—Yes, and that would be a reason for giving them more time in the Woolwich Course.

1445. But you divide them?—I think heat might be very well got out of the way by the schools, but some parts of electricity require a considerable amount of mathematics, and I should advise, therefore, taking this subject at the more advanced stage of the education of the cadets.

1446. Would you not allow them to take up, say chemistry, or heat and electricity?—In the past it has been found that the candidates will select the subjects, which for the time being are likely to pay best. I think an elementary knowledge of chemistry is most essential for some parts of electricity, and if a boy does not have that, then parts of electricity become wholly unintelligible to him.

1447. Do you think that heat and electricity can be taught at school in an elementary way without taking chemistry?—If you require it, it can be done, but I think at school the elements of chemistry should be taught with one of these subjects.

1448. *Sir H. Roscoe.* Do you think that science has failed to pay at all in the course of work at Woolwich; it is highly marked, is it not?—It is highly marked, it has not paid very well. It was reported to me, a year or two ago, by a Master of the Army Department of one of the public schools, that out of 15 candidates who were selected for the Engineers on one occasion, two only had taken up science at the entrance; 11 had gone in on German, the two others he was unable to trace. It is evident that, on that occasion voluntary German which they do at Woolwich, had such an effect upon the selection of Engineers, that the men who had gone into Woolwich on science had been seriously handicapped. Such a state of things as that is, I think, most unsatisfactory. I should avoid that by making elementary chemistry and heat compulsory on entrance, and restrict the competition of these subjects afterwards by not allowing German and science to come into competition in the course at the Royal Military Academy. I think it was found at the last examination in Woolwich, at the end of the first term, that only about one-half of the cadets had got the required minimum in German, whilst in the science part of the work all but two or three had been able to get the minimum. The conclusion to be drawn from that is that some of the boys must have been let through the science examination uncommonly easily. I know of some boys who had done no science previous to going to Woolwich, and yet who were able, at the end of the first term, to hold their own with the "swells" who had previously got very high marks in that subject.

1449. *Mr. Roby.* Would not an open system of examination enable each to offer the subjects in which he was strongest?—I think it does so only in theory; it would do so if you could get the whole body of examiners to set equal papers, and if the examiners were teachers and each knew the effort required to teach up to the papers in all subjects. But this is impossible.

1450. *Mr. Roby.* Supposing we adopted the plan of giving the best candidate in each subject full marks, and the others in proportion, what would you say to that?—I would like to suggest as a modification of that what is called the range system, which is this: What we may call the *mean maximum* of the marks given by the examiners in each subject is found by dividing the total of the marks of the x candidates who get highest marks by the number x, which should equal about one-tenth of the total number of candidates who take the subject; the *mean minimum* is found by similarly dividing the total of the x candidates who get the lowest marks by the same number. The difference between the mean maximum and the mean minimum then gives the "range" of the marks in each subject. Let us suppose that in subjects A, B, and C the ranges as thus defined are found to be—

A	B	C
1,500	2,500	500
to	to	to
500	1,000	200

and that the allotted marks of the subjects are, A 2,000, B 3,000, and C 1,000. The marks allotted in each subject must then be so multiplied, or divided, that the "range" in each case bears the same ratio to the allotted marks of the subject, and that the mean maximum and mean minimum marks respectively also bear the same ratio to the allotted mark in each case. Then in the foregoing instance there would be—

	A	B	C
Allotted marks	2,000	3 000	1,000
Mean maximum	1,000	1.500	500
Mean minimum	400	600	200

By means of such a system the relative values of average work in a number of subjects can be very fairly preserved constant and free from the very wide variations that otherwise usually occur, and at the same time it permits work of special excellence to have its full value, and very bad work to be duly penalized.*

1451. Would you agree to another plan, that is, giving a candidate credit for only those marks which he got above a certain minimum?—I do not like that. If you took the minimum as 250, then the boy who got 251 marks would score only one, while the boy who got 2,000 would score 1,750. I think such a plan as that is very unfair upon the average boy, and the proportions vary so much.

1452. There would always be the same difference between those two candidates; it is hardly a question of proportion, is it?—One would like the marks of different subjects to be always in proportion; that is, to have a constant difference between the average at the top and the average at the bottom, and I think you could do that without unfairness on the "range" system.

1453. *Sir H. Roscoe.* Is that system at all largely adopted?—It is at Clifton and also, I believe, at Harrow. The advantage of adopting that system would be this, that if in June there is an easy paper in any particular subject, and then at Christmas a

* The witness handed in a memorandum on the subject of the "range" system of marking, which will be found in Appendix No. XV.

hard paper in that subject, the candidates do not suffer, because they all get marks in proportion. Another thing is that the system gets rid of the personal equation of the examiner, and even if you change the examiners the result is not disturbed. The examiner can also vary the type of his papers. Mr. Oscar Browning, writing to the "Journal of Education" some three years ago, gave an account of how the examinations were arranged, and it disclosed a most stereotyped system of papers. Teachers can teach up to papers, and it would be very difficult, under the present system of marking, to alter that, because any sudden change in the type of papers is so unfair as between the candidates from different places. A perhaps has been taught the right thing at one place, and B the wrong thing at another place. But if a teacher is sure his subject will count equally, and if he is also aware that the papers are liable to vary, then he will not teach up to the papers, but he will teach his subject generally.

1454. *Lord F. Hervey.* Is it, in your experience, that one subject gets conspicuously well marked, or badly marked, over a long course of time?—I have not occupied myself lately with that, but I have heard that it is the case. Some years ago I supplied indirectly to the Head-masters' conference some figures upon these examinations, and as it was found that science and Greek were marked very much lower than modern languages, attention was called to the fact.

1455. *Sir H. Roscoe.* Why do you not allow a choice of chemistry or physics at the entrance examination?—Partly because I object to be always leading these young men to consider what will pay best, it is a bad lesson for young soldiers, and partly because I think it better to keep electricity for the Woolwich Course. If you allow a choice of chemistry or physics at the entrance examination you will save no time at Woolwich, you will still have to teach both subjects to the men who have not taken one or the other at the entrance examination.

1456. Would you not make the same selection for Sandhurst?—I think you might in that case give the choice between chemistry and physics, making the languages compulsory. Such a plan would, however, be very inconvenient to teachers, because it would involve a distinction between the two classes, which would be a little hard on the smaller schools.

1457. How far does this Army examination affect the work of the public schools?—I think it may be said to almost control the work on the modern side of some of the public schools. I have been told that at Cheltenham the modern side and the Army class are almost indistinguishable, and that when a boy goes to the modern side then he chooses German or science because he cannot offer both for Woolwich.

1458. *Lord F. Hervey.* He can under the present system?—Yes, but I think a practical consideration of the chances of its answering makes it a most unwise thing to do.

1459. Is it not the case that the number of pupils offering mathematics is lower now than formerly?—I am told that the proportion who offer higher mathematics is decreasing.

1460. They get in?—Yes, but that is what I want them not to think about so much. I want them to think what will be best for them afterwards.

1461. *Sir H. Roscoe.* From what you have said I presume the examinations we are now considering touch, not only those coming into the Army, but also all those who are receiving instruction on what is called the modern side of the public schools?—That is so to a considerable extent.

1462. *Mr. Roby.* Are many of your boys good classical scholars?—Some are, but the best of these do not come into the Army class.

1463. *Sir H. Roscoe.* Do you think that Latin is such a fixed portion of the school curriculum as to be taken up whether we make it compulsory or not?—If it were in the optional group as I have suggested (Latin, French, and Greek), I think Latin and French would be taken up by the great majority, and Greek chiefly by the boys from the classical side who make up their minds somewhat late. I think Latin would, as an optional subject, die harder than any other, because it has been taught for so long in the schools, but I think it would be given up if persistently marked low. At Clifton we do not teach it to all on the modern side; and I should not be surprised to see German taking the place of Latin in the next 20 years on modern sides.

1464. *Mr. Roby.* How would you like a system which allowed them to take up Latin, French, or German, any two they liked?—I prefer my other arrangement which makes German compulsory, as I gather that German is so important for soldiers; I would give a choice between Latin, French, and Greek, and that would make Latin and French almost compulsory.

1465. It is generally held that optional subjects should be all marked alike?—Yes, that must be so for the marking to be at all fair.

1466. *Sir H. Roscoe.* Do you think that the course you have suggested is possible, or feasible, for many of the schools?—I think it would be inconvenient for a time to some, but I do not think it would be impossible; to make physics a compulsory subject would be very inconvenient for many. I was connected with two small schools before going to Clifton, and at one of them, the Taunton Grammar School, we had no difficulty in teaching science to the boys going in for such examination; and at the other school, Exeter, we were able to do much the same.

1467. The practical teaching of chemistry is now within the reach of most schools, is it not?—Yes.

1468. Do you think that science as now taught is a tutor's subject rather than a school subject; that is to say, is it one in which tutors can cram the boys?—It is a subject in which I think the schools have now beaten the tutors. I have observed that Cheltenham and Marlborough, and one or two other schools, are making a very good show, and getting very good marks in science; and I think many small schools have now very good appliances, and that it is becoming easy for them to get helped with appliances. The smaller schools have done well in gaining science scholarships of late years.

1469. Would you say that practically there could be no objection on the part of the schoolmasters if some portion of the science were made obligatory?—I think not now, though there might have been 20 years ago.

1470. "Mark hunting" is undoubtedly very undesirable, but do you think your "closed" system is one in which such a state of things is liable to occur?—I think "mark hunting" would be almost killed by the "closed" system.

1471. *Mr. Roby.* Suppose you allowed any two to be taken out of Latin, French, and German, which do you think would be taken?—Whichever a boy thought he could score the most marks in.

1472. But dealing with your own Army class, which would you say?—That is a little difficult to answer, owing to the usefulness of French and German in the Academy, and in after life. I think, as time goes on, the tendency would be to leave Latin out, though candidates would continue to take that subject if the "mark hunting" system remained whilst the subject paid. Another advantage of the "closed" system is that you examine every boy, not only at his best, but also at his worst, which is fairer on the whole.

1473. Would not the effect of that system be that the boys would give a disproportionate attention to the weak subjects?—No; I do not think it would be worth while to do so in a closed system.

1474. But they might be spending a great deal of their time upon some of the subjects in which they are the strongest?—I think we ought to adopt a system which would tend to strengthen their weak

subjects without much weakening their strong subjects. I am greatly opposed to encouraging lads to neglect these weak subjects.

1475. *Sir H. Roscoe.* Have you any remarks to make upon the present system of marking the papers?—What I have referred to as the "range" system would, I think, facilitate varying the character of the papers somewhat, and in that way encourage better teaching, and make the success of the pupils not quite so much depend upon whether their instructors watch the examinations. It would lead teachers to give a broad knowledge of the subjects; and I think it would promote equality among the subjects in the examinations. It would, so to speak, steady the whole thing, like the fly-wheel of an engine.

1476. Have you anything to say with regard to a physical test?—Some statistics were prepared at Clifton some time ago, and it was found that boys who distinguished themselves in examinations were, as a class, also distinguished in sports. It has always seemed to me that the questions might be dealt with in this way: Supposing 50 boys were wanted, the first 20 in the intellectual examination might be taken after passing such a physical examination as the present one, and then (say) the next 60 might be submitted to a physical test of their muscular powers, their powers of walking, and so on.

1477. *Mr. Roby.* What would be the maximum marks you would assign?—I would give good marks equal to those of the other part of the examination, perhaps.

1478. Suppose they got 900 marks as a total for the literary examination?—Then I would give a similar number for the physical examination, at any rate a mark that would distinctly count.

1479. Would you add those marks for physical subjects to the marks already obtained, or would you make it a totally new examination?—I think I should add them to the marks already obtained.

1480. *Sir H. Roscoe.* How would you conduct the examination?—I cannot quite say, it would be a matter for experts, but I think it might be by walking powers, and chest measurement, and so on. If you have two candidates with equal marks, the man who has the better chest is undoubtedly the better man for you. I had thought of including walking, running, shooting and things of that sort, if excellent, as I think a boy ought to be allowed to offer any accomplishments of a high order that he may have.

1481. *The Chairman.* How would you impose a walking test?—In the Woods and Forests examination a candidate has had to walk 20 or 25 miles in a certain number of hours.

1482. Do not you think that an unfair test for a boy of 17?—I think not; I think it would encourage athletics; the distance mentioned may be rather great. I should mark a boy according to his condition after the walk.

1483. Do you think there is any necessity to further encourage athletics?—Yes, and I think you would say so if you saw my chemistry class; some of those boys would be a great deal better if they were driven into the gymnasium, though the class, as a whole, is not below a good average in physique.

1484. *Lord F. Hervey.* Would you encourage gymnastics so much as to drive boys away from their studies?—Certainly not, but the boy who is well practised in out-door games will, in the long run, be the one who will stand the training for these examinations best.

1485. *Mr. Roby.* Have you ever seen or known of any distinct competitive physical examination with a properly defined system of marking?—No, I have not, and I think that it should be remembered that whatever is done will be an experiment. That the system adopted should distinctly be subject to early revision.

1485*a*. *The Chairman.* Is there anything else you would like to say?—I should like to say with regard to teaching science, that I think that it would be an improvement in all the science examinations if alternative questions were put. When only 10 questions are set, and all have to be answered, it is pure luck if a man can answer them all, but if you set 12 questions with 10 to be answered you give the candidates more equal chances. That is done in some subjects, but not in all, and I think it would be a good thing if it were done in all.

Note by the Witness.—I omitted in my evidence to point out that my selection of subjects for Sandhurst would be hard on candidates who might prepare first for Woolwich and then after failure, or for any other reason, offer themselves for Sandhurst, unless they had selected French for a Woolwich subject in the first instance. In fact, that it would tend rather strongly to force Woolwich cadets to take French for one of their optional subjects.

I do not myself see any great objection to this, but it might press hardly in a few cases; and, therefore, I am glad to draw attention to it, as I do not think the point was noticed, and it is one on which there may be some difference of opinion.

Following my lines the scheme of subjects, altered to avoid this, would be—Mathematics and German compulsory; and any three of French, Science, Latin, Greek, History, with Drawing, &c., as at present.

But this is open to the very great objection, in my opinion, that it would open the way to mark hunting.

W. A. SHENSTONE.

6th December, 1893.

[*The Witness withdrew.*]

FRIDAY, 1ST DECEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Sir H. ROSCOE, M.P., F.R.S.
Dr. W. A. HUNTER, M.P.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Rev. J. PERCIVAL, LL.D., *examined.*

1486. *The Chairman.* You are Head Master of Rugby?—Yes.

1487. *Sir H. Roscoe.* You have an Army class at Rugby, I believe?—Yes.

1488. How many have you in that class?—About 45 at present.

1489. Do more of your boys go to Woolwich than to Sandhurst?—The majority of them go to Sandhurst. A certain number try for Woolwich first, and then go on for Sandhurst if they fail.

1490. Do the boys joining this special class go through a portion of the general school curriculum?—Yes; in some instances they travel by the classical side until they reach the fifth form, in other cases they go by the modern side up to the fifth form, and then they join the class; we make that a requirement before we pass the boys into the Army class. The difference between those boys is that if they come from the modern side they have learnt no Greek.

1491. Have all the boys in the Army class a knowledge of Latin?—Yes.

1492. If that language were made optional instead of obligatory, do you think most of the boys would still take it up?—I am not quite sure what effect that would have generally; in our own case I think we should preserve Latin as an obligatory subject.

1493. *Mr. Roby.* How would it do to make German an alternative to Latin?—My first impression is that it would intensify any tendency there may be to give up Latin; but if I am not mistaken, German is a very important language for a soldier to know, and for that, and many other reasons, I think it is felt to be desirable that Officers should know German.

1494. Would that act as a disadvantage on the whole, do you think?—If it came to be an alternative, some boys would probably drop Latin and take up German.

1495. Would there be any great harm in that?—Perhaps not in an individual case, but I should be sorry to see anything done that tended indirectly to drive Latin out of this or that particular school.

1496. *Sir H. Roscoe.* What is your opinion of the present system of the entrance examinations for Woolwich and Sandhurst?—I think there are three points which should be very clearly borne in mind. In the first place, the subjects on which special weight is laid should be such that if the candidate fails he has had both a thoroughly good education and one that will be useful when he has to look towards other lines in life.

1497. Do you say that, in view of the fact that a very large proportion of the candidates who go up for the Army do not pass?—To judge by the lists, that would appear to be so; but in our own case my experience is rather in the opposite direction, as most of the boys going into the Army class do reach the Army ultimately, either through Woolwich or through Sandhurst, or through the Militia. But then in regard to those, as I have said, we require a preliminary test, by making them reach the fifth form before they go into the Army class. There is no doubt that a good many fail to pass these examinations, and therefore I think that the subjects in the examination should be coincident with those required for a good education. The second point upon which I lay stress is that the system should be such as to secure the best class of Officer, and in view of that I think the boys should be encouraged to go up direct from the public schools. Speaking from my own experience, I should say that the schools can compete with any of the crammers in regard to Army examinations; and I say that after my six years' experience at Rugby, where I instituted the present Army class, and having many years ago established the Army class at Clifton. The statistics of both Clifton and Rugby show that a a boy seldom improves his chances of getting through the examination by leaving the Army class for the crammer.

1498. Is it a general thing, or is it only an exceptional thing, for the large schools to have an Army class?—I am not intimately acquainted with the course followed at the schools generally, but I think most of them have Army classes.

1499. *Mr. Roby.* How long are the boys usually in the Army class at Rugby?—From two to three years, seldom more, I think. The boys come to us at about 13 years of age, and then if they are to have a chance at Woolwich they ought to arrive at the Army class before they are 15; if they are going into Sandhurst they should arrive at the Army class before they are 16.

1500. *Sir H. Roscoe.* Do you think that sufficient weight is given to the science subjects for Woolwich?—I should like to see them a little more weighted, but the deficiences with regard to science are, I think, mostly with reference to the arrangements at Woolwich.

1501. *The Chairman.* Do not you think it advisable to give the boys going into Sandhurst a chance of being examined in science?—Yes, certainly. With regard to the means to be adopted to secure the best class of officer, I certainly think it desirable, if possible, that the boys should come direct from good schools, and further than that, I think it is worth

while considering the question of a physical test. Boys are more likely to do well if they are not passed through the hands of the average crammer. Some crammers, of course, are excellent, but in some cases I fear the boy runs very great risks.

1502. Are you satisfied with the present medical examination?—I should be glad to see both a medical and a physical examination.

1503. Do you think the medical examination might be made more strict than it is at present?—I have never had occasion to think it wanting in strictness, certainly not in the case of my own boys; I have never known anyone to be passed who was obviously unfit, but I am inclined to think that certain physical tests might be adopted which would tend to improve the average physical quality of the successful candidates. I would, therefore, venture to suggest that some such plan as this be adopted. I would not proceed with the physical and medical examination until the intellectual part of the examination was over and the list made out; then I would determine what marks should be given for physical qualifications, but I would not give very high marks. The number of marks to be given is a matter for consideration, but supposing the last on the list for Sandhurst got 6,000 marks, then, perhaps, 1,000 might be given for the physical qualifications. I would then take all the candidates down to 5,000 marks, and let them undergo a physical examination so that all who attained the maximum marks for that subject might have a chance of getting in. As to what physical qualities are the most valuable in the Army that would be for military men to decide. I think such things as riding, running, capability of walking long distances, swimming, and so forth; in fact, all such things as test strength, activity, endurance, nerve, and presence of mind would be good things to take into consideration when dealing with such a test; but one should be careful not to give special advantages to those who have had special facilities of one kind or another.

1504. *Sir H. Roscoe.* Then you are in favour of making the physical examination a competitive examination?—Yes, certainly.

1505. Have you ever heard of any similar system existing by which such subjects as you have mentioned have been competitively marked?—No, but I think it could be done.

1506. *Mr. Roby.* What class of persons would you select as examiners?—I should look to military Officers and medical men. There would be no difficulty in conducting such an examination; for instance, as a test of endurance, it would be an easy thing to set a number of these candidates to walk 10 miles, carrying a knapsack.

1507. They would be very young in comparison with what they would be when they had to no such a thing professionally?—Yes, but the condition in which they came in would be a very valuable test.

1508. *Sir H. Roscoe.* Do you think it would be regarded as being sufficient if you at Rugby gave a boy a certificate as to the position he held in the cricket field, or in the football field, or as to his capability for running?—We could do that, but I do not know how we should mark them.

1509. It would be easier for you who had had the boy under observation for some time to do that, than for an examiner to do it after seeing the boy for, say only a few minutes?—I think in the case of such a system it would be very difficult to satisfy the public that it was a just one. If, however, 1,000 marks were given for such an examination as I have described, it might probably lead to some of the very best men for the Army getting in who are now kept out.

1510. *Mr. Roby.* If you are going down to 5,000 marks, could it not be arranged to take none above 7,000 for this physical test, and keep it to all within those limits?—Yes, certainly.

1511. *The Chairman.* I gather you are of opinion that a physical test would provide us with a better class of Officer for the Army, but have you any reason for supposing that the senior Officers in the Army are dissatisfied with the class they get now?—No, I have heard no complaints.

1512. Have you heard of any of the Officers we get now breaking down on route marching, or on service abroad?—No; I get very good reports of those who go to Sandhurst.

1513. All your boys who join in the house-runs and in the football, which they must take up, are in very good physical condition, are they not?—Yes; I do not think we need any stimulus from a school point of view.

1514. Suppose we imposed a walking test of carrying a knapsack for 5 miles, might not that practically result in what we may term cramming?—What was in my mind rather was this, that as amongst 100 candidates, or whatever the number might be, the addition of some mark for physical qualities would tend to give the Army a more robust, active, vigorous, and, probably on the whole, a better stamp of Officers for the purposes of the Service.

1515. Do you think if riding were suggested as a test, that there might be a great public outcry?—It might be said, "this is in favour of the rich, and the country gentleman," and so on, and that is, to a certain extent, true; but, on the other hand, it might be urged, from an Army point of view, that the men who have been so admitted are so much the better fit to be good Officers.

1516. *Mr. Roby.* Have you thought at all whether you could give an alternative to riding?—I have not; if riding were thought objectionable in that way I would leave it out, or it might be made an alternative with something else.

1517. *Mr. Hunter.* Would not riding as a subject give the country boy an advantage over the town boy?—Yes, perhaps so, and it would have the effect of driving the town boy to the riding-schools.

1518. *The Chairman.* Coming back now to the literary examination, do you think that, in order to widen the range, we might give 10 subjects, and allow each boy to make a choice of five?—I should be rather inclined to minimise the voluntary subjects. My third point is, that I think the system which is adopted for the entrance examination should lead up to the course of study to be pursued at Sandhurst or Woolwich. The entrance examinations and the systems of further study should, indeed, be indissolubly connected, and not be considered as separate. I am not very familiar with the course at Woolwich, but my point is this, that it should be the aim in arranging the marks for the entrance examination to make them, as far as may be, preliminary to the teaching which the boys will receive afterwards. All absolutely preliminary and rudimentary teaching should be done before they go to Woolwich or Sandhurst. The subject I am thinking of particularly at present is science, which I understand is of a very elementary character at Woolwich, and I think that any school which is worth considering, would bring its candidates up to a very fair level before they entered Woolwich or Sandhurst.

1519. *Sir H. Roscoe.* Can that be done in the smaller schools at the present time?—Yes, I think in almost all schools.

1520. Are you in favour of having a certain number of subjects for the entrance examinations?—Yes, my feeling is that it is desirable to lessen rather than enlarge the voluntary subjects for the entrance examinations. I should like to see a schedule somewhat of this kind: obligatory subjects to be Mathematics, Latin, French, and German, and a certain special portion of Natural Science, which would probably be chemistry and heat, or chemistry and electricity. I would leave English, Geometrical Drawing, and Freehand Drawing the same as at present.

1521. *Mr. Roby.* When you say "obligatory," do you mean that a certain minimum would be required, or would you have a plucking minimum?—Out of the five subjects I have stated a candidate might be

expected to reach a reasonable standard in not less than four. In those four subjects I think a Woolwich candidate ought to get 40 per cent. in mathematics, and in the other three subjects the standard might be lower, say 25 or 30 per cent. With regard to the Sandhurst candidate he might be allowed a standard somewhat lower than the Woolwich candidate, certainly in mathematics; but he also might be expected to reach a reasonable standard in four out of those five subjects.

1522. Is there any great advantage in having a plucking minimum in four subjects out of five; it might keep out the indifferent candidate, but might it not also exclude those who would be very useful?—There is no very great advantage in it, unless, perhaps, you consider that an Officer for the Artillery or Engineers should have a mathematical knowledge.

1523. *General Sir W. O. Lennox.* Do you consider that Latin is necessary for any Officer?—No.

1524. *The Chairman.* What would you say to allowing only marks above a certain minimum all round?—That is the old Indian Civil Service plan, and was once, I believe, the plan adopted for the Army, and it might be adopted. I should, however, prefer a class of obligatory subjects with another class of optional subjects, from which any two might be taken, and those, together with my five obligatory subjects, would make seven subjects in all, besides the English and the Drawing.

1525. *Sir H. Roscoe.* Would not that be too many?—Not if the standard of the preliminary subjects were not too high. The class of optional subjects I should like to see made up in this way: the advanced study of any of the obligatory subjects, and either English history, including the literature of a special period, or Greek, or any other subject thought suitable.

1526. Would you always have a specified period?—Yes, I think so.

1527. Why not have a system of free choice?—I think there are a good many objections to having a large schedule of subjects with a free choice from it; it is hardly compatible with a good curriculum even in a large school, and in the case of the small schools, I am afraid it would be disastrous, tending strongly to drive their boys away to the crammers.

1528. *Mr. Hunter.* Suppose the choice were unlimited, but the number limited?—It would still give rise to much uncertainty in the minds of parents who know, or fancy they know, the subjects in which a boy is likely to do best; it would tend to set boys and parents hunting about to see on which subjects they thought they could make most marks, and it would also tend to teachers picking out subjects for the same reason; in fact, it would tend to degrade education to a system of mark hunting.

1529. Is it possible to give two subjects an exact equality?—No, I think there is always the possibility of inequalities.

1530. *Sir H. Roscoe.* How would a large number of subjects affect the small schools?—They have only a small staff of masters who are able probably to teach well the subjects which I have put as obligatory on my list, but if they are given a wide range of subjects, which they are not prepared to teach, it would constantly be happening, I think, that their boys would be tempted to leave them.

1531. And would that lead also to cramming?—Yes, and I expect you would find that as a rule the crammers would be in favour of such a system of free choice out of a large number of subjects, because, of course, it would bring grist to their mill.

1532. *Lord F. Hervey.* It would greatly increase the difficulty of making the examinations just, would it not?—Yes, I think so.

1533. Even if the Civil Service Commissioners should satisfy their own minds that the examinations are just, it is probable the public would not think so?—That is so, but the public often complain unreasonably.

1534. But under that open system the risk of injustice would be multiplied indefinitely, would it not?—Certainly, if you allowed a large choice from a practically unlimited number of subjects.

1535. *The Chairman.* Would you be in favour of making the Woolwich examination more severe?—No, the qualifying standard is quite as high as it ought to be, shutting out all but clever boys. I think the right thing is to pick out the subjects which will give the best education to boys up to 18 and make them obligatory, and then specialize as much as may be thought expedient afterwards.

1536. *Mr. Hunter.* Would you give your obligatory subjects equal marks?—On the whole I think the present marks reasonable.

1537. *Sir H. Roscoe.* Are you not putting a serious weight upon a boy in giving him three languages, Latin, French and German?—No, I think not, if they have learnt the languages from the beginning of their school time; and perhaps the standard of attainment might be made a little easier.

1538. Do you think it would be better to get a less complete knowledge of French and German rather than an extended knowledge of only one of them?—Yes, it is a good thing for a boy to have made a beginning, because if he has done so he is the more likely to carry on the subject afterwards. I would say teach the boys, up to a certain point, all the subjects they will have to pursue at Woolwich, so that when they get there they can go forward. The system of marking in Woolwich at present seems to be open to very great objections, because, from the published lists, it appears almost to drive candidates to study two modern languages before entrance, and then be content with learning a certain amount of rudimentary science while they are in Woolwich which they ought to have learnt previously. If they had done that they would have been inclined to go on, with the result that their scientific knowledge would be greater on leaving Woolwich than it is now. Practically the present system leads to this candidates who give their attention to the study of languages have a better chance of getting into the Engineers than those who have studied science, and that appears to me to be a mistake. The present system does not give sufficient facilities to the scientific man to get a good place. I think, therefore, elementary science should be made an obligatory subject, prior to entrance, so that the advanced instruction could go forward from the time of their entrance.

1539. *Mr. Whitmore.* Would you make that apply equally to the Artillery candidates?—Yes, I think it would be a good thing for them.

1540. *Mr. Roby.* Have you had any experience in examining in scientific subjects?—No, my information with regard to that is gathered from my colleagues.

1541. Are you satisfied from what you hear that chemistry and physical science are as good subjects for examinations as languages and mathematics?—I have never observed that there has been any difficulty in arranging good examinations for boys in those subjects. My physics have always been in the hands of a good mathematician.

1542. Is he equally well satisfied with the examination in both subjects?—Yes, I think so; it is not our habit to dissociate science from mathematics; arithmetic and elementary science are very closely connected.

1543. *Sir H. Roscoe.* Some evidence is before us with reference to the range system of marking; do you think that is a good system?—I have not tried the experiment of range marking myself. With regard to any system of marking it is no doubt desirable that certain things should be eliminated, for instance, the idiosyncracies of the examiner who marks the paper; one might give 75 per cent. to the best candidate in one paper, and another might give only 60 per cent. to the best in another paper, and therefore it is certainly very desirable to eliminate the "personal equation." On the other hand, it might happen that a paper was unduly hard on one occasion,

and on another occasion unduly easy. That also should be guarded against. There are various ways of eliminating those possible elements of injustice, and the range system is one of them.

1544. *Mr. Whitmore.* Would not that system take a long time in the marking?—Yes, it would give some trouble in the office of the Civil Service Commission. I would not trust it to every examiner to do it. A simpler system to adopt is the one which gives the candidate who does the best paper the maximum obtainable, and then raises all the other marks in proportion. That I think does rough justice as a rule, though in some cases it might be necessary to supplement it if the best candidate is above the average, or to deduct if the best candidate is below the average. The Civil Service Commissioners could see to that. The advantage of that system comes in in comparing the different subjects, and a subject does not lose weight in the case of an exceptionally hard paper being set.

1545. *Mr. Hunter.* Is it your experience that over a series of years the standard varies?—Not, I think, over a period of years. Of course, the top men go up and down, but I think the average is about the same.

1546. *Sir H. Roscoe.* Is there a general satisfaction felt amongst teachers with regard to the present method of marking?—I think that the masters, as a rule, consider the papers are set with great care; though now and then things occur which cause a little grumbling.

1547. *Mr. Roby.* Do they ever express any dissatisfaction with the relative marks of various boys?—Now and then they may be surprised a little; but, as a rule, I think they are satisfied. The boys that we believe will get in generally do get in, and very often in the order we expected. My mathematical master has, however, remarked to me that he does not think the distinction between elementary mathematics and advanced mathematics is sufficiently kept in view in setting the higher papers. He has pointed out that a boy who did not read up the so-called advanced mathematics might get a considerable percentage in the advanced mathematical papers. Here, for instance, is one paper in which 40 per cent. of the marks might have been got by a candidate who had not read the higher mathematics at all. Moreover, the higher mathematical papers at present contain some hard questions only suited for older students, and on the other hand, some which would be counted easy questions in an elementary paper.

1548. *Lord F. Hervey.* Is it not part of the scheme that the higher mathematical examination should consist partly of problems included in the syllabus of obligatory subjects, but carried to a higher stage than those in the obligatory examination?—Yes, that is so; but I think the higher mathematical paper should be set so as to carry boys on to other subjects.

1549. *Sir H. Roscoe.* It has been suggested that alternative questions should always be set, so as to give all boys a chance?—That might possibly be a good thing, though it is a little risky to set many alternative questions, because a boy may miscalculate; he may take the harder questions when he ought to take the easier ones. I must confess I should like to see a paper, as a rule, of a reasonable length, and let the candidates do all they can.

1550. *Lord F. Hervey.* But even then a boy may miscalculate?—Yes, so he may.

1551. *General Sir W. O. Lennox.* Do you think the calculus might be inserted in the higher mathematics for Woolwich?—Yes, I think it is a very easy and interesting subject.

1552. *Mr. Roby.* One witness has complained that the men, when they got to Woolwich, were not sufficiently skilled in the use of logarithms, would there be any difficulty in teaching them that at school?—No, certainly not; I think it would be better for the boys to learn the use of tables. In that case you would have to give logarithmic tables to the candidates in the examination; it would not do to let them bring their own.

1553. *Mr. Roby.* With regard to the selection of subjects for the examination, would such a list as this meet your view:—English composition and history, geometrical drawing, mathematics, and any two of French, German, or Latin, and chemistry with heat or electricity. Those to be subjects which all must take up, and also one out of these: higher mathematics, higher physics, Greek, and another language?—I should be rather afraid to make English history compulsory.

1554. Does that meet your view in leaving comparatively little choice?—Yes, to that extent.

1555. Under that system, would you still insist upon Latin being one of the subjects that all must take up?—No, but I am a little afraid of what might be the indirect consequence. If I were obliged to adopt a system of alternatives, I should be content to have French, German, and Latin, any two; that would probably lead to French and Latin being taken by the majority of candidates, and it would be for the military authorities to say how that would suit them.

1556. *The Chairman.* Would you be disposed to give a choice between any one of those three subjects and geography?—No.

1557. Would the list just put to you satisfy the general educational requirements of those who fail to pass for the Army?—Fairly well, but I do not think it would lead up to a simple and efficient system at Woolwich and Sandhurst so easily as my own list would.

1558. *Mr. Roby.* Have you any very great objection to the addition of history?—I am a little shy of making that a compulsory subject.

1559. But ought not men in the Army to know something of the history of their own country?—I think it is a subject which is not, in itself, of the same educational value as the others, besides which it is a subject which is more easily examined.

1560. And even if it were would not the cram be worth the having?—If it were thought desirable I should wish to see it put on as a compulsory subject at Woolwich and Sandhurst and be read there as men would read it.

1561. *Mr. Hunter.* If the object of this competition is to ascertain who are the cleverest boys, do you consider from that point of view that history is a good testing subject?—No, not exactly; you can test memory and style in an historical examination very well, but I do not think you get very much further than that.

1562. *Mr. Roby.* Would the list I have proposed disturb the curriculum of the schools very much?—No, perhaps not, except in the Army class, where it might lead to the dropping out of French or German or Latin.

1563. *The Chairman.* Have you those three subjects in your Army class?—Yes.

1564. *Mr. Roby.* Do your Army boys get their Latin in the ordinary forms?—No, we teach them by themselves.

1565. *The Chairman.* Do you think the public schools would act up to whatever this Committee might suggest should be carried out?—They would be willing to do so, more or less; but, of course, if you laid down a syallabus with a large number of subjects they would have to make a selection.

1566. *Sir H. Roscoe.* Would Mr. Roby's or your list be the more welcome of the two?—My list involves one more language and no history, that is the difference between the two, and I do not know how that would affect the smaller schools. If it were not for the military necessity of learning German, Mr. Roby's list would be very simple.

1567. *Mr. Roby.* Would you make chemistry a necessary thing for Sandhurst?—I should like them to gain some elementary knowledge of it while at school; I think that is so very desirable.

1568. Would not the principle of having such a subject which they must all take up excite more ob-

jection on the part of people generally than anything else?—Only in quarters where people have been slow to do anything.

1569. But taking the course of English education at present would not that be a very startling innovation?—I think most schools have got as far as making some provision for science, but they have not got so far as saying that every boy shall learn something of science.

1570. *Lord F. Hervey.* Have you got to that point at Rugby?—Yes. Every boy coming up the school must learn chemistry and physics, we give an alternative only in the 5th Form, and upwards, on the classical side, where a boy may drop science and take German, also continuing his French.

1571. You do not provide for geography in your plan?—No, not unless it were put in as an optional subject.

1572. If geography, English composition, geometrical drawing, and freehand drawing, were provided for, that would make nine subjects in all?—That would be rather too heavy a list.

1573. Which subject would you cast first?—Geography, I think. It would be a pity to drop English composition entirely.

1574. *General Sir W. O. Lennox.* Should not the average English boy know geography?—He would have learned some geography before he entered the Army class.

1575. Would there be any objection to testing him in that?—Hitherto that has been required in the preliminary examination lately abolished.

1576. Do not you think it important for an Officer to know something of geography?—Yes, I do, and I should wish to see it made a compulsory part of the course at Woolwich and Sandhurst. That seems to me the right plan with reference to both geography and history.

1577. *Lord F. Hervey.* We have been given to understand that geography is not taught in public schools, is that the case?—It may be so in some schools, but not at Rugby; we teach geography.

1578. You say that the course of instruction at Woolwich and Sandhurst should bear some definite relation to the subjects of our entrance examination, but are you aware that the course at Sandhurst bears no relation whatever to the subjects of the present entrance examination?—I think that is a pity, though I do not know what the military requirements may be; I think some of the literary subjects might with much advantage be taken up at Sandhurst.

1579. They are entirely military subjects and there is no science, nor history, nor geography?—I think military history and geography should be taken up there.

1580. If the military authorities attached great importance to those subjects, or any one of them, you would naturally think that they would make some provision for teaching them, would you not?—Yes, certainly.

1581. Is there not a great waste of time in preparing candidates for the entrance examinations in subjects in which they are not exercised at Sandhurst?—The chances are they will forget their languages, and not a little of the science they have learned.

1582. Have you had any complaints made to you in regard to the examination in higher mathematics?—No, nothing beyond what I have already referred to, about some of the questions being too hard and some too easy.

1583. Have you found at Rugby that this militates against some candidates taking up higher mathematics?—No, because if a boy has the ability we say "you must take up that subject"; we take the boy into our own hands and tell him what we think he can do best. My mathematical master advises higher mathematics, because of their value to the candidate at Woolwich, though some other subject might win more marks at entrance. I think it is desirable that German should be a compulsory study at Woolwich, and possibly also at Sandhurst.

1584. *Mr. Roby.* Do you think that literature questions should form part of the examination in a modern language?—No, it is too big a subject, and unless a period is set it should be dropped entirely; at present it is not only vague but unfair. Sometimes in the German examination, I am told that the questions are all on Goethe, and this last time they were all on Schiller; and on one occasion a candidate was asked to translate a quotation from some play and then give an account of the author, when it was quite a chance if he knew who the author was.

1585. Do you think that the early part of English history is relatively desirable, or would it be wisest to restrict the period?—It would probably be more profitable for candidates to learn the more modern history. With regard to science, it should be determined what branches it is especially important for an Engineer Officer or an Artillery Officer to know thoroughly; those things should guide those who draw up the syllabus. I think also that the question of setting the papers is worth a little consideration. It is desirable that each paper should be set by two persons at least, and should be supervised by some third person. Some teachers say that the papers tend to become stereotyped in form, and that tends rather to encourage cramming.

1586. Do you think it important that two examiners should look over the papers?—I would not quite say that, but I think an examiner in marking a paper should do so on the understanding that the marks would be supervised; then I think you would have a guarantee of carefulness, and that is as much as you can expect. That course is followed in the Oxford Local Examinations, which is the only examining board with which I have been connected. I think the supervision of the papers should be done by some one at the Civil Service Commission; and I think, in the interests of justice and careful work, some such system as that should be followed.

1587. *Mr. Hunter.* Have you ever examined for the Civil Service Commissioners?—No, but I have known a great many who have, and some of them were eccentric men.

[*The Witness withdrew.*]

General Sir R. H. Buller, V.C., K.C.B., K.C.M.G., *examined.*

1588. *The Chairman.* You are the Adjutant-General to the Army, I believe?—Yes.

1589. Have you given any attention to the question of a competitive test for physical development for candidates entering the Army?—Personally, I am against any examination for physical development that would be in the nature of a special opportunity for youths who are highly developed physically entering the Army as against others. First of all, I doubt if any examination of physical development for the age at which we take youths into the Army is much good, seeing how they change in the seven years following the date at which they come in. Another thing is, we do not want merely strong men, we want men

who have constitution or pluck, or endurance, or whatever you like to call that something that some men have and others not, which enables them to endure trials and privations where sometimes the strong men and the big men fail. I have known several instances during my service, of men, who would not have passed any examination of physical development, going through a campaign far better than the stronger men. I remember perfectly well two men in my own regiment; one was a man exceptionally well developed, an athlete, and an altogether active man, the other was a man who would not have passed any standard at all, and yet when the regiment went on service the strong man collapsed at once, while the other man stood two campaigns.

1590. One witness has suggested giving 1,500 marks for a physical competitive examination, 500 marks for a medical test, 400 for riding, and 200 each to marksmanship with the rifle, running and jumping; do you consider that a good plan?—No, I should deprecate it. Many candidates have no opportunity of learning to ride before they come to us; I would much rather see a general average standard of physical qualification laid down, advertised and adhered to; that would, I think, be better for the Army, and for the parents, and for the candidates. We should not then take in Officers of less than a given standard of chest measurement, height, weight and so on, the same as we do in the case of the ordinary recruits. I would also insist upon the candidates having normal eyesight.

1591. *Mr. Roby.* Is there not rather a difference in selecting men as recruits, who go at once into the Army, and in selecting boys who go to college for a two years' course before going into the Army; is there any necessity in their case for the examination to be so strict?—I think you should be as strict, but it does not necessarily follow that you should have the same high standard; the Medical Officers should fix the standard, and that should be the minimum. I do not pretend to say what the standard should be; I leave that for the doctors. We have a sort of standard now, but that is only in relation to height, and even then young fellows have, at the urgent request of their parents, been allowed to join the college in the hope that they will grow.

1592. *The Chairman.* Have you any reason to be dissatisfied with the class of youths coming into the Army now?—I think not, though we have a certain number who are not what they should be.

1593. *Mr. Roby.* Would you like the test to be a fairly severe one?—I would have the Medical Officers fix what they would expect from young Englishmen of this age, with the anticipations and employments that these Officers have. Previously we had an unpublished standard, but I think that was altogether wrong, because sometimes when we objected to a boy his parent came, and said, "I think this is very hard upon me, you have allowed me to spend a great deal of money in training the boy, and now you will not take him." That is what I want to avoid.

1594. What height would you suggest?—I do not think it should be less than 5 feet 4 inches, but I would rather leave it to the doctors.

1595. Would you enlarge the chest measurement in proportion to the height in the case of Officers?—Yes, the same as in the case of the men.

1596. *The Chairman.* What do you think the object of the Army examinations should be, to find youths of a certain intellectual capacity, or as possessing a knowledge of certain subjects which may be of use to them afterwards in their profession?—I think the examination should be based upon a system of education, which can be easily applicable to other professions, I think it is a misfortune for the Army if these entrance examinations are made special; that is to say, if parents, in order to get their boys into the Army, are obliged to put them through a system of education which handicaps them for other professions. I think it would be better all round if the entrance examinations were based upon an education that would be at the same time best for most of the liberal professions. I would prefer to leave the specializing until they became cadets; what we want are boys who have been taught to observe and reason, and then we can make them into soldiers.

1597. *Lord F. Hervey.* Is geometrical drawing a thing which you would require?—Geometry is a certain science, and enables you to train the reasoning powers, but I would not make that a *sine qua non*, though I would give a boy credit for that, as it exercises the reasoning faculties.

1598. We understand that a difficulty arises at Woolwich, and Sandhurst now, owing to the fact that the candidates are not sufficiently coached in geometry?—I think a distinction must be made between Woolwich and Sandhurst. The examination for Woolwich is an examination for a college which is to produce specialists, but the examination for Sandhurst might well be made easier and simpler.

1599. *Sir H. Roscoe.* Do you think scientific subjects are of importance in the examination for Woolwich?—Yes, and I think such subjects as electricity, chemistry and heat could be taught fairly well at Woolwich, but the moment you try to teach young boys those subjects, you turn them on to pure cram, and a youth of that age who spends his time in cramming knows nothing a year afterwards, so that we do not gain by throwing these subjects into the examinations for young boys.

1600. Do you know how the practical examinations in science are conducted?—No, I do not. Personally I should like to see the range of subjects for examination as wide as possible; we really want the boy who has been taught to observe and use his observation, he is better for our purpose if he can do that.

1601. Do not you want science subjects rather than book work?—I cannot say, it may be so.

1602. *The Chairman.* Do you agree with the present five obligatory subjects?—Yes, I think they are as simple as they can be made. Personally I should like to retain Latin, as it still forms the basis of the education of the schools which send us the best Officers.

1603. *Mr. Roby.* Would you be inclined to require three languages—French, German, and Latin from everybody?—I should like to, but doubt its being possible; I think it would be a great advantage to the boys if they knew French and German, in addition to Latin.

1604. Is there any special advantage to be gained in the Army from a knowledge of Latin?—No, but a knowledge of Latin makes the acquisition of French easier. The only advantage in keeping Latin is that we do not then interfere with the general course of the schools from which we recruit our Officers.

1605. *The Chairman.* Have you any preference for German over French?—Yes, its grammar is easier, and a knowledge of some grammar is important. I think French grammar is very difficult, and a knowledge of Latin helps a boy in that.

1606. It has been represented to us that so much of the better war literature is in the German language, and, therefore, the boys ought to know it?—I do not think we shall improve the Army by laying down what boys ought to know; what we want to get is the well-educated boy, and as long as they had either German or French, I should be equally glad to have such boys.

1607. It has been thought that we might have 10 subjects, all equally marked, and allow the boys to take up any five, does that suggestion fall in with your ideas?—I think mathematics should be obligatory, and a language certainly; I would also require good writing and correct spelling; but the more open you made the examination in other directions, the better for us, though I do not wish to see it so open as to allow a candidate to take up a lot of subjects, and get only a few marks in each.

1608. Do you attach any importance to a boy knowing English history?—I think he ought to

know some history—he ought to be able to appreciate history, it is a part of a good education.

1609. *Mr. Roby.* Could it not be well taught in Woolwich and Sandhurst?—No, I think not, we have not the time; we can teach its application, but not the subject itself.

1610. *Sir H. Roscoe.* Do you think they could continue the teaching of German or French at Woolwich and Sandhurst?—I should like to have one language continued at Woolwich and Sandhurst.

1611. Do you think it would be practicable?—I do not know the hours they devote to the subjects, but I should like it if it could be done.

1612. *Lieut.-General Sir R. Gipps.* With reference to the apparently weak man standing a campaign better than the apparently strong man, do you think that is the rule or the exception?—That is hard to say, but I think as a rule the very strong men do not bear the strain of a long campaign as well sometimes as the ones less physically strong.

1613. *The Chairman.* Have you anything to say with reference to the examination of the Militia Officers who come into the Army?—No, except that I am not satisfied with them. Nearly double the number of Militia Officers are spun in their after professional examinations as compared with those passed through Sandhurst, so that the result is not so good in their case as it is in the case of the Officers coming from Sandhurst.

1614. Have the Officers coming in from the Militia a better physical development than the others?—No, I think not. Undoubtedly every man who can get into the Army through Sandhurst does so, and consequently the Officer coming through the Militia is usually the youth who is not able to get in the other way; he is not superior in physique, and probably not so good in intellect and education.

1615. *Lord F. Hervey.* The Militia Officers' physical development is not attended to on any plan, is it?—No, but he gets two months' military training in the year.

1616. *Mr. Roby.* With regard to one man breaking down and another bearing up under the strain of a campaign, is it your impression that what makes the man do so is a mental quality, in fact, is it pluck or courage rather than physical strength?—No, not all, I think; it is very hard to say what it is, but there is no doubt that in campaigning you will see men go on and never get sick, in fact, they stand anything, which at first no one ever thought they had the power to do.

1617. *The Chairman.* In fact, it is an indefinable quality which you could not get at by any scheme of examination?—Yes, that is so.

1618. Is the object of taking Militia Officers to get bigger men into the Army?—No, it is practically to induce Officers to come into the Militia. Parents believe it the easiest way into the Army, and sometimes therefore the competition for entry through the Militia is keener than the competition for going into Sandhurst.

1619. *Lord F. Hervey.* Would there be any objection to raising the literary qualification for Militia Officers?—I cannot quite say, but it seems to me that there is a tendency about all qualifications to reduce themselves automatically.

1620. Instead of taking 3,000 marks as a qualifying number for an Officer to enter the Militia competition on military subjects, would you object to raising that minimum to 4,500?—No, but I am not sure that you would get the result you anticipate. The effect of lowering a standard of marking is to lower the standard of the man coming in, and even by raising the minimum, I do not think you would get better men than now, the tendency of examiners seems to me to be to mark according to the average of the examiners rather than with reference to an ideal minimum.

[*The Witness withdrew.*]

His Royal Highness The Duke of Cambridge, K.G., *examined.*

1621. *The Chairman.* You are the Commander-in-Chief of the Army, I believe?—Yes.

1622. Will you please give us your opinion of the present class of Officer coming into the Army?—I think we have very much the same sort of man coming into the Army now as we had formerly. There is also a certain number of men who are less physically well qualified than we should like, and I think in former days they would have been rejected, but the difficulty is to do that now without inflicting injustice upon them. For instance, there was a case of an extremely clever young fellow below the standard, we let him in because he was clever, and in the hope that he would grow, but he did not, either in height or chest measurement, and the consequence was that we had to keep him, it would have been hard upon him to have turned him out, but from a physical point of view he ought never to have come in.

1623. Do you inspect the cadets at Sandhurst and Woolwich every year?—Yes.

1624. How do they compare now with what they were?—As a whole I do not think they compare badly, but there are some who ought not to have come in.

1625. Have you ever had any reports upon their physical incapacity?—I do not know that we have had any instances of their having failed; we do not ask questions of that sort of Officers of the Army.

1626. It has been suggested to us that one way out of the difficulty might be to mark physical development at the entrance examination, which might be done in this way: have a total of 1,500 marks, and give 500 for a medical test, 400 for riding, and 200 each to marksmanship with the rifle, running, and jumping. Do you think anything of that sort could be attempted?—I think it would be very desirable to have a physical test, but I do not know that I should put the marks in that way. It seems to me that you cannot have a physical test with marks together with an educational test, and the solution of that problem appears to have been the great difficulty with those who proposed the plan. I am quite sure there are a number of men who are very fair in knowledge, but who have not a sufficient number of marks in the literary subjects, who are physically superior to some we get in now, and I think it is a pity we should not have an opportunity of getting them; but there is the further difficulty of how to arrange matters so as to get them. I admit the difficulty of a physical test, though I think it is extremely desirable to have one if it can be done.

1627. Do you think the object of the present entrance examination is to get boys who are intellectually fit, or is it to get boys who are educated in certain subjects which will be professionally useful to them in their after career?—I think for the Artillery and the Engineers a boy should have a certain amount of mathematical knowledge, and I think it is a great advantage to have a fair proportion of Officers generally throughout the Army who also possess those

requirements; but I think there are a great number of men who would be quite as useful for the Army even if they did not come up to that high standard of education. At present there are about 700 or 800 coming up for each examination, very many of whom are well qualified for the Army; they are perfect gentlemen, they go into society and are considered intelligent men, but as they cannot get within the first 100 they are kept out of the Army.

1628. Do you think the examination should be a test of the generally educated young man?—Yes, I think so, the general education is all you require for the ordinary Officer. The generality of Officers are not called upon for anything beyond the ordinary military duties, and though I do not think they all need the higher education, yet there is a great advantage in some of them possessing it.

1629. Do you set any particular store by foreign languages?—Yes, I think a knowledge of them, especially French and German, is very necessary for all Officers; they are even better for the ordinary Officer than mathematics, though the latter are valuable as hardening the mind.

1630. *Mr. Roby.* Has the deterioration of cadets to which you have referred grown at all during the last 20 years?—I think not; it is the same as it has always been—there are a certain number admitted whom we should have been just as well pleased not to have seen in the Service.

1631. *Sir H. Roscoe.* Are there in the German Army any methods by which the physical powers are tested?—I imagine they must have some test, because to look at the run of their Officers generally they are very fine fellows; though perhaps as a nation the Germans are more bulky than we are accustomed to see here.

1632. *Lord F. Hervey.* Is there any change which you would wish to see carried out in the present system of examination?—We are often told we put the examinations too high, but that is really regulated by the number of candidates who come up for the vacancies. If there were a smaller number coming up then the examination would depend only upon what we required them to know; but now, with such numbers competing, the competition is rendered very severe amongst themselves. The qualifications we ask for are not excessive, but they have to become excessive, owing to the numbers coming up.

1633. *The Chairman.* We understand that the educational subjects are dropped at Sandhurst and only professional subjects taken up, but would you like to see the study of modern languages continued there?—I think that would be a great advantage; we are brought into contact with other nations so much now that it is most important for an Officer to know some foreign language.

1634. Do you think that German is more necessary than French for an Officer, or *vice versâ*?—I think they are now both of equal importance, though formerly I think I should have put French first.

1635. Would your remark with regard to Sandhurst apply equally to Woolwich?—Yes, because Officers of the Artillery and Engineers are also brought very much into contact with other nations. With regard to the question of a physical test, I should like to say a word about eyesight. I have seen a great deal of the German and French Armies, and there I find a very large proportion of the Officers wearing spectacles. With us the impression is that anyone wearing glasses should not be admitted into the Service; but I say the man who can see well with glasses is just as well qualified as the man who can see without them.

1636. *Mr. Roby.* Are glasses at all worn by Officers in the Army now?—Certainly; there is no objection made to that, although we do not allow it among the men. Of course, one reason why one sees it so much in foreign armies is that they are maintained by conscription, and if glasses were made an objection the proportion to be excused on that ground might be very considerable.

[*The Witness withdrew.*]

Lieut.-General E. H. Clive, *examined.*

(*See* also Appendix XVI.)

1637. *The Chairman.* You are the Governor of the Royal Military College at Sandhurst, I believe?—Yes.

1638. For how long have you held that appointment?—Five and a-half years.

1639. How do the cadets of to-day compare, physically, with the cadets of five years ago?—I do not think there is any material difference in the physical powers. I have had a return made out of the candidates who are under height or chest measurement, and from that return I find we had, in the 2½ years from July, 1890, to December, 1892, 47 cadets who were placed under observation on account of deficient height or chest measurement. Of the 341 cadets now at the College who have arrived in the last 18 months, we have 67, or nearly 20 per cent. under observation. Accordingly it would appear that there are more under observation now than there were: of the 47 cadets above referred to, 3 have not received commissions, 37 made up the required deficiency during residence here, and with 7 more, who were still under standard, have entered the Army; but they are younger.

1640. Do you see much difference between the Officers now and those who were Officers when you joined the Army?—I think they are bigger men now.

1641. Do you think an examination in physical development, such as athletics, would be a good thing?—I do not think such a thing is at all advisable. I think the British Officer will always have a strong tendency towards athletics, and there will always be plenty of inducements for them to excel in games; but I do not think it would be fair to give a boy who could jump (say) 5 feet 2 inches an advantage over other boys who could not jump. I think the physique of the Officer is as good as it ever was.

1642. It has been suggested that we might give marks for riding?—We put them through a riding-school now, and we can undertake to teach them sufficient riding, without interfering with their other studies, as will enable them to go over a rough piece of country and sit on parade. Half the boys who are taught riding at Sandhurst have never been in the habit of riding at all. At the present time nearly one-half of the "first ride" consists of cadets, who never rode before coming to Sandhurst, and one of them was second for the riding prize.

1643. One Officer has expressed an opinion that no person who did not begin riding young ever got to be a good rider?—Of course, a boy who begins riding early is less afraid of horses that he might otherwise be, but for all practical purposes, we turn our boys out very fair riders.

1644. If it were decided to have this physical test, do you think there would be much difficulty in carrying it out?—I think the difficulties would be very great, and I am quite sure that the physical qualities of the boys are sufficiently good without it. I should say that now practically head work is wanted more than physical work in the Army.

1645. Have you ever heard any of your professors complain that there was a difficulty with the boys in adapting themselves to the studies required after their entrance examination?—I have obtained reports upon that from the heads of three branches, with these results: the head of the Tactical Branch says, their knowledge is ample; the Professors of the Fortification and Topography Branches say that there is a distinct want of knowledge in the use of scales, and in the six books of Euclid. Boys not thoroughly grounded in scales and Euclid find a difficulty in understanding maps, and in measuring heights and distances in the field. I have been unable to ascertain whether there is any minimum in these subjects in the entrance examinations; and, therefore, some of the boys may be allowed to come to Sandhurst who have got very few marks for scales.

1646. *Sir H. Roscoe.* Do you think that is a useful subject in an entrance examination?—Yes, a knowledge of scales is very important in fortification and topographical work.

1647. *Mr. Roby.* Do the ordinary Officers of the Infantry and Cavalry have any use for a knowledge of fortification?—Yes, for field fortification, far more now than they ever had; an Officer wants that knowledge, because he might be sent out with a party to occupy a position without an Engineer Officer being with him, and then he would have to throw up his own works for protective purposes.

1648. *Sir H. Roscoe.* Do you think it would be advisable, or possible, to carry on the teaching of modern languages during the time cadets are at Sandhurst?—I think not, if the course of military instruction is to be the same as it is now; I believe that was done in former times, but I have always understood that the teaching of foreign languages at Sandhurst by foreign professors was not a success.

1649. *Mr. Roby.* We understand that the intellectual work at Sandhurst is not more than four hours a-day, is that so?—The head work, as you may call it, takes up only about four hours a day, but their time is taken up in some way or other from 7 in the morning till about 5 in the afternoon. From 7 a.m. till 3 p.m. the cadets' whole time is accounted for on five days in the week. The juniors drill and do gymnastics, one hour each after 3 p.m. The intermediates ride or do gymnastics after 3; and the seniors ride four times a week. This takes no account of the work that cadets have to do in such time as remains to them.

1650. Is any military geography taught to the cadets?—Only in so far as it enters into the study of military history. I should like to say we find it very awkward having two classes of cadets at Sandhurst. Besides the men who come in by open competition we have the privileged class, Queen's Cadets, Queen's Honorary Cadets, and Queen's Honorary Indian Cadets, who are admitted on the bare qualification that they satisfy the examiners that they will profit by the education to be got at Sandhurst. I believe the original intention of Sandhurst was to provide for the sons of Officers who had done good service, and of those who died in the Service, hence we get the privileged cadets. These Queen's Cadets are only required to qualify in the entrance examinations by getting some 3,000 marks, but are put into the classes with the cadets who have come in with, perhaps, 6,000 or 10,000 marks, so that practically they find themselves side by side with cadets who know three times as much as themselves, and that of course has a tendency to delay the instruction of the abler cadets, or to hurry over it with the privileged cadets. I do not, however, think it would be fair to put all those who have simply qualified into one class, because no instructor would like to take them, and such a class could not get through the course of instruction.

1651. *The Chairman.* Would that state of things be got over by putting up the qualification to, say 5,000 marks?—That I think would be hard upon the young fellows whose claims to the public bounty is their fathers' service. A good many of the complaints about young fellows not getting on well under their instructors refer to these privileged cadets, and therefore I think it would be well if the qualifying standard of knowledge in Euclid and construction of scales were raised so that the privileged cadets would be level with the ordinary cadets for purposes of the Sandhurst course.

1652. *Mr. Roby.* Do the Queen's Cadets physically compare favourably or unfavourably with the other cadets?—I do not think there is much difference between them, though I must say that some of them are very small.

[*The Witness withdrew.*]

Brigade Surgeon-Lieut.-Colonel A. F. S. Clarke, M.D., *examined.*]

1653. *The Chairman.* You are the Medical Officer at the Royal Military College at Sandhurst, I believe?—Yes.

1654. For how long have you held that appointment?—For about 10 years.

1655. Do you examine all the lads as they come in?—I am one of a Medical Board which has to examine them, and the President and myself deal with all the doubtful cases. There may be perhaps 130 successful candidates coming into Sandhurst at a time, and as it would be quite impossible for me to see them all in one day, the Medical Officers detailed for the Board examine them, according to regulations, and any doubtful cases are referred to the President and myself. We feel that it is a very responsible duty for us, and therefore we are very careful before rejecting a boy after he has passed the examination in the literary work.

1656. Do you reject many?—We rejected six last time.

1657. For what reasons?—One on account of extreme short sight, two for defective physique, two for being under the chest measurement, and one on account of heart mischief.

1658. How do the cadets you get now compare with the cadets you got 10 years ago?—I think the general physique has much improved. In 1886 I was not satisfied with the physique of the cadets, and I wrote to the then Governor pointing out that the physique was not so good as I thought it should be. I therefore suggested a scale of height, weight, &c., which I thought might be laid down. The question was put aside, but in 1890 I again brought it up officially, and after a great deal of correspondence the present scale was adopted, and that is that a cadet when he leaves Sandhurst must be 5 feet 4 inches in height, and 33 inches round the chest as a minimum.

1659. Is that 33 inches a hard-and-fast rule?—Yes, but it has not always been carried out. Seven cadets who did not attain the standard on leaving Sandhurst were specially examined by orders from the War Office,

and they have since been gazetted. I believe they were given to understand when they came in that they would not get commissions unless they came up to the standard.

1660. A suggestion has been made that a sliding scale should be put into force, do you think that would be fair?—Yes, I think it would be fair, but it should be taken in connection with age; I think we ought to be more lenient with a boy of 17 than with a boy of 19.

1661. Is 33 inches for 5 feet 4 inches a normal, or a high test?—I think it is a very easy test.

1662. What would the proper proportions be?—A man of 21, with a height of 5 feet 4 inches, ought to have a chest measurement of 36 inches. I should say that youths as a rule fill out very much in the three years between 18 and 21, we find that to be so with us, for while at Sandhurst the cadets improve enormously in physique.

1663. *Sir H. Roscoe.* Do you think that lung capacity is a matter which should be sought after rather than chest measurement?—I do not think that is of great importance; I think a Medical Officer of large experience can easily judge of a youth's fitness, by chest measurement and by the way a chest is shaped and developed.

1664. *General Sir W. O. Lennox.* Do you turn a boy away for a badly-shaped chest?—Yes, we should reject him for poor physique.

1665. Do not you think it would be advisable to lay down some fixed line, so as to avoid any chance of grumbling?—I think that can be dealt with now by the present regulations, our decision is final in every case. We have rejected boys for muscular tenuity and bad physique.

1666. *Mr. Roby.* Do your measurements of 5 feet 4 inches in height and 33 inches round the chest apply only on leaving Sandhurst?—Yes.

1667. You have therefore to form an estimate of how a candidate is likely to grow in the time he is with you?—That is so.

1668. Then on entrance you have no special fixed measurements?—No.

1669. Do you consider it essential to have the sight of both eyes the same?—Yes, speaking in a general sense.

1670. Do you always find that?—No, frequently they are different, but sometimes they are remedied by glasses; the regulations as to sight are very clear.

1671. *The Chairman.* Do you think the present medical test is sufficient to enable us to get the men we want in the Army?—Yes, as a rule; but I think the chest measurement might be slightly increased.

1672. Do you think that any advantage would be obtained by having a physical examination for athletes?—I think that would be a mistake; it would be exceedingly difficult to lay down the lines by which to distinguish between 500 or 600 boys, and besides, such a thing would be very hard upon the boy coming from the private tutor as against the boy coming from the public school. I think such an examination would be unfair in many ways.

1673. *Mr. Roby.* Do you think it is quite a question of unfairness; is it not rather that we have to get the boys best qualified for the Service irrespective of whether it is hard upon A or B?—That is so.

1674. Consequently, do you think it would be a gain for the Service if we gave marks for a physical examination?—You might gain a little in physique, and lose it in brain power.

1675. Suppose it were arranged in this way: take the last 50 on the list, and the first 50 among the unsuccessful, and then submit them to a competitive physical test; there would not be much difference between them intellectually, and by that means we might get the best qualified into the Service. Besides, that plan would have this advantage, you would not have so many to examine as if you applied the test throughout?—I do not think I would lay any stress upon such a plan. I think the physique of the Sandhurst boys at present is uncommonly good, but I think the chest measurement might be raised a little.

1676. *Sir H. Roscoe.* Do you think there is any necessity for a more stringent medical examination than at present?—No.

1677. *The Chairman.* Would you disqualify 30 per cent. of the boys, do you think, if you put up the chest measurement half an inch?—I think we should disqualify 10 per cent.

1678. *Mr. Roby.* It has been suggested to us that a boy should be made to go a certain distance in a certain time, and then be examined at the end to see how he bore the test. Do you think a Medical Officer could mark a boy in that way?—I think it would be very difficult, and without much practical result.

1679. *The Chairman.* It has also been suggested that a boy should be required to go 10 miles with a knapsack; do you think that would be an unfair test?—Yes; it would be a very severe test.

1680. Would you break down more boys than you passed by such a test as that?—I think so. As long as the physique we get is sufficient for the requirements of the Army, I think that is enough.

1681. *Lord F. Hervey.* Do you think the effect of the course of instruction at the crammers is so serious upon these boys that they might not be able to go 10 miles with a knapsack?—I think a great many of these boys are completely played out for a time by their work for the examinations, but they improve considerably afterwards.

1682. Do you notice the same effect in the case of boys coming from the public schools?—No, not so much if they come direct from schools.

1683. Is your medical examination adopted under the new system, as stringent as it would be with an insurance society?—No, it would take too much time; about ¾ of an hour is necesary for an insurance case.

1684. Do you test for spinal curvature?—Yes.

1685. Your test will be more severe in the future than it was in the past, will it not?—I do not think it will be more severe, except when we get doubtful cases, and then we are exceedingly careful.

1686. The last witness informed us that he had a larger number under observation now than formerly?—In 1886 the average chest measurement was 33·5 inches; this year it is 33·8 inches. But that does not represent quite a fair test, for they are younger by 12 months now than they were then, besides which we had University candidates who pulled up the average, and if they had been excluded the figure in 1886 would not have been so high as 33·5 inches; so that really I think there is a proof that the cadet of 1893 is bigger round the chest than the cadet of 1886 was.

1687. Have you any reason to suppose that a larger number of cadets fall out now than formerly, owing to their inability to undergo the course?—Certainly not. During the last few years the gymnastic training has become more arduous; the cadets run more and jump more, and they are able to stand a long field day better.

1688. If it has been alleged in some quarters that there is a progressive deterioration of the Officers entering into the Army, may we take it that, so far as you know, that is not the case?—Yes, on the contrary, I am sure it has improved.

1689. *Mr Roby.* Have you served with an Army in the field?—Yes, in India.

1690. Have you noticed at all whether the apparently less well-developed men have stood the campaigns better than the big men?—I have not noticed much in regard to that, but I have found that sometimes the wiry men lasted longest.

1691. With regard to the privileged cadets, do you find any difference physically between them and the other cadets?—I think not, they pass the same physical tests.

[*The Witness withdrew.*]

TUESDAY, 5TH DECEMBER, 1893

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.

Mr. R. H. BRADE, *Secretary.*

Inspector-General JAMES NICHOLAS DICK, C.B., R.N., *examined.*

(*See* also Appendix XVII.)

1692. *The Chairman.* You are the Director-General of the Medical Department of the Navy, I believe?—Yes.

1693. For how long have you held that appointment?—For upwards of 5½ years.

1694. Are the cadets for the Navy examined more than once?—Yes, twice a-year, June and November.

1695. What is the age of your cadets?—They are between 13 and 14½ years when they come to us, and then they serve for two years on board the "Britannia."

1696. Are they examined on leaving the "Britannia"?—They are under constant medical supervision; a boy who is considered to be suffering from any physical defect would be at once brought before a Board of Survey and invalided; and, if necessary, removed from the "Britannia."

1697. Is it in your opinion possible to make any comparison between the medical examination you have for the Navy and the medical examination we have for the Army?—I only know what the examination for the Army is in a general way, and believe the examination for the Navy to be stricter, it being necessary to be more exacting with boys at an early age.

1698. Is there any hard-and-fast line of examination laid down?—No, the examination is stringently carried out by the Medical Examining Board in accordance with the regulations, the Admiralty having no physical standards for Naval cadets.

1699. Are your marine Officers medically examined by the Admiralty authorities?—Yes, a Naval Medical Officer is sent to the Army examinations to say what our requirements are. We enter Officers into the Marines much in the same way as you enter Officers into the Army, though we are an inch over you in the matter of height, as we insist upon 5 feet 5 inches. We do not question chest measurement, unless perhaps a candidate has a very narrow chest, and even then if he promised to turn out a robust man, he would be admitted.

1700. I presume it is impossible to have a hard-and-fast rule, as regards measurements, in the case of boys of 13?—Yes, the matter has been considered over and over again, but nothing definite could be laid down, because in many instances boys who are very small at 13 frequently develop into very fine men; and should a boy present himself somewhat narrow chested or short in stature he may be accepted, provided he promises to develop satisfactorily.

1701. Then is the acceptance or rejection entirely at your discretion?—Yes, viewed as a purely physical question, with the approval of the Admiralty.

1702. Have you a hard-and-fast line with regard to eyesight?—Yes, we demand full normal sight from all cadets; it is necessary in the sea service, and there are a good many rejections on account of our requirements. In regard to Marine Officers, we make only the same demands as you do for the Army.

1703. We have had some evidence with regard to giving marks for physical development, do you ever do such a thing in the Navy?—No.

1704. Do you think that would be of any practical value?—Yes, I think so. I have seen very fine boys who were unsuccessful at the literary competition, and who would, no doubt, have got in if any such marks were given. You might initiate such a practice by giving, say, 100–150 marks, and if you did, I think that some of the boys who do not now get in would succeed in so doing.

1705. No doubt it would be a very good thing if thoroughly practicable, but are there not almost insuperable difficulties in the way?—I understand so.

1706. Is there any proof that physically fine boys do better on foreign service than the boys of slight build?—That is very doubtful. From my own experience in the Navy, I should say that moderate sized men, as a rule, stand campaigning and the influences of climate much better than very big men.

1707. Do you think that the introduction of a physical test, say, in running, jumping, and walking long distances with a knapsack, would tend to bad results?—Yes, I think they would sometimes lead to bad results, especially if they induced boys to overdo the ordinary exercises of school. Capacity in running and jumping would show that a boy was active, and it would, of course, be a good thing so long as the boy did not, what is called "train off." Sometimes, I think, athletes are trained to a harmful extent, and, on account of that, I think their general system suffers in after life; I should urge moderation in all these things.

1708. Would you be content with constant training in the football field?—Yes, or in the cricket field; it is the unusual exercise that does the harm eventually.

1709. What do you do in regard to advertising your medical examination, do you send to parents and guardians any paper showing what is required?—A form referring to the medical examination is sent from the Naval Branch at Whitehall; when a boy gets a nomination this form is sent to his parents or

guardians and they have to abide by the terms of that paper as closely as possible. A boy should be physically examined by his own family medical attendant before coming up to us.

1710. Does that primary sort of medical examination save you from rejecting many candidates, do you think?—Yes; for instance, parents find it is practically useless now to send up short-sighted boys, though we do still examine them. At the examination, which was concluded yesterday, the rejections on account of defective vision were between 7 and 8 per cent.

1711. How many do you get at a time at your examinations?—Nearly 200 came up for this last examination, and we were eight days examining them; each boy comes before the Board separately.

1712. Does that examination take place before the competitive examination or after?—Before; no boy is allowed to sit at the competitive examination unless he has a certificate showing that he has passed the medical examination, and is fit for Her Majesty's Navy.

1713. *Lieut.-General Sir R. Gipps.* Do you ever allow boys to enter at their own risk, as it were, in order that they should develop hereafter?—No, that is never allowed.

1714. *The Chairman.* Do you often have men break down in the Service between 20 and 30 years of age?—Not to a very great extent. Our boys are examined with great care, they are an entirely picked set and of course they do remarkably well. They do not often break down even abroad, except through fever or some other acute disease, nor do they often develop rupture or varicocele about which we are very particular.

1715. I presume we may take it that the life of the boys on the "Britannia" is an extremely healthy one?—Yes, I think so.

1716. Would you say more so than the life of men who live in barracks?—Of course with regard to their sleeping accommodation they are more crowded than men would be in barracks, but otherwise their life is passed much in the open air and they are, on the whole, a very healthy set. They have plenty of opportunities for amusement and exercise on shore; they have very good workshops, gymnasium, and racquet courts.

1717. What proportion of their time do the boys spend on board before being allowed on shore?—There is a regular routine for them; they study all the forenoon, and they also do some work after lunch and during the evening. I think they go on shore about 2.30 or 3 p.m.

1718. Do you think the class of boy you get now is about the same physically as you got when you first joined the Service?—I think they are much about the same, they have not altered or deteriorated except with regard to their sight. Short-sightedness has, in my opinion, immensely increased in this country during the last 20 years.

1719. Do you think that is in consequence of the excessive book-work?—Yes, I have no doubt about it in my own mind. Many of the short-sighted boys are very well educated, and it is a great loss to the Service having to reject some of them.

[*The Witness withdrew.*]

Rev. J. E. C. Welldon, M.A., *examined.*

1720. *The Chairman.* You are the Head Master of the Harrow School, I believe?—Yes.

1721. For how long have you held that position?—For rather more than eight years.

1721A. Before that I think you were at Dulwich College?—Yes.

1722. The master of your Army class has already given evidence before this Committee, do your views agree in the main with his?—Yes; but there are one or two points which I should like to emphasize. The first is the very great importance to the schools of the examinations remaining stable, because it is so difficult to be always changing the staff of a public school. A man who takes a mastership in one of the great public schools looks upon it as a position which he will probably hold for the best part of his life, and changes in the examinations compel or may compel changes in the staff of masters, and such changes take some time to carry out. We can teach any subjects you choose to ask for, but not one thing one year and another thing the next, without it considerable amount of trouble. Changes do not affect the crammers so much, because there the teachers do not look upon their positions as being permanent in the same sense.

1723. When you say "public schools," do you include in that phrase other secondary schools as well as schools like Harrow and Eton?—Yes, but it is especially difficult to change masters who are highly paid, as they are at Eton and Harrow.

1724. At present there are two Army examinations, do you see any advantage in having three?—I think I prefer two, but I have no strong feeling upon the point.

1725. At present the examinations take place, and are over before your terms end, do you think it would be an advantage if the times of the examinations were so changed that when they were over the boys could go at once for their holidays?—Of course it would be an advantage to the schools, because the boys do not come back in a very industrious frame of mind; but as to the boys, I do not think it would matter.

1726. With regard to the present classification of subjects for examination, are you in favour of having a restrictive number of compulsory and other subjects, or would you like to see a very wide range, say, of ten subjects, marking them all equally, and allowing a boy to take up any five?—I am of opinion that there should be compulsory subjects, and I think they should be those subjects which, as I hold, ought to enter into the education of every English gentleman. There should be a certain amount of mathematics, one ancient language, one modern language, English, in which I include history and political geography, and some branch of natural science.

1727. How would you approve of such a selection as this: English, including the subjects you mention, geometrical drawing, French, German, or Latin (the candidate taking any two of those three), mathematics, natural science, would that be a useful selection?—Yes, except that I think Latin should be compulsory.

1728. What we have also to look to is the large number of boys who do not get into the Army, is it not?—Certainly, they deserve consideration.

1729. Would you therefore not think it hard upon a boy if he were incapacitated from taking up other lines of life by the subjects we required for the Army examinations?—I can hardly see how they would be incapacitated for other lines of life by the subjects you at present require. I think geography is parti-

cularly important for Army boys. I also think that colloquial French or German is worth a great deal to them, and it would be difficult for them to learn a language colloquially late in life.

1730. Would you mark the colloquial part of the examination in modern languages more highly than it is marked at present?—Yes.

1731. In your subject "English" do you include grammar, spelling, handwriting and composition?—Yes.

1732. May not the stress upon spelling be sometimes overdone?—Yes.

1733. With regard to history, what range would you examine in?—Having regard to the age and character of the boys, I should be inclined to recommend a paper in general English history, supplemented perhaps by a paper upon a special period.

1734. *Lieut.-General Sir R. Gipps.* Would your "science" be chemistry or electricity?—I am inclined to chemistry.

1735. *The Chairman.* Some experts are in favour of, what may be called, an "open" range, and some are in favour of a "closed" range, but am I right in assuming that you would prefer to have the great bulk of the examination obligatory?—That is so. I feel very strongly that all boys should take up Latin; that is speaking from the point of view of the public schools, but I consider that their education ought to proceed upon the principle that there are certain subjects of which every educated man ought to know something.

1736. *Lord F. Hervey.* Do you think your subjects fall within the competency of the ordinary boy coming up for these examinations?—Yes, that is assuming those compulsory subjects were not carried very far.

1737. *The Chairman.* When you say "compulsory" subjects, do you mean you would like to see a plucking minimum in any of them?—Yes, my view is that a boy should exhibit some knowledge of all those subjects. Beyond those there might be some voluntary subjects which would mean either that he carried some of those subjects further, or that he took up others.

1738. Are you satisfied with the present arrangements for these examinations, or would you like to see the papers set by two examiners, or by a Board of examiners?—I am satisfied with the arrangements as they stand; I do not think there is any more uncertainty attaching to them than to any other system with which I am conversant.

1739. *General Sir W. O. Lennox.* Do you like the "range" system of marking?—No.

1740. *The Chairman.* Do you think if we put down ten subjects and allowed a boy to take any five it would lead to what is called "mark hunting"? We understand that, for gaining marks only, some subjects are better than others?—That would be the result if you had no compulsory subjects.

1741. Do you think that a physical competitive examination would be desirable?—I think a physical examination should be a qualifying and not a competitive examination. The medical examination might be increased in severity if it were thought desirable. I do not approve of a physical examination if it means that marks are to be given according to the appearance of a candidate. Nor do I think you would satisfy the world at large if you were to take into account gymnastic performances; they are not the things in which the best boys always distinguish themselves, but in cricket and football you cannot mark a boy, though you can for gymnastics. It appears to me that special physical gifts above a certain point are not worth much. What you want chiefly is the will; history has shown over and over again that by strength of will weak men have triumphed over very great obstacles.

1742. The strongest boy, and the boy who is the biggest round the chest, is not always the best boy in the cricket field, is he?—No, I think not, nor is it always boys of that kind who perform the most heroic actions in war; and therefore I do not think a competitive physical examination would help you to get the best boys into the Army.

1743. If we adopted such a test, do you think the public would consider we were favouring certain classes?—Possibly.

1744. Even if it were desirable to do it, do you think the difficulties in the way of properly carrying it out are almost insuperable?—Yes, I think so. I do not know whether it is in contemplation to alter the present arrangements, but, from the school's point of view, it is an important gain that a boy should have a chance of getting into Sandhurst if he fails at Woolwich.

1745. *Lord F. Hervey.* If, having regard to the requirements of the Artillery and the Engineers, the entrance examination for Woolwich were made distinctly more scientific, it would be extremely difficult, would it not, to pass a candidate into Sandhurst on the strength of his work in the examination at Woolwich?—Yes, I think so; it is very important that they should not be too widely discrepant.

1746. *The Chairman.* Would you like to see a special examination for Woolwich, or would you like to see Sandhurst and Woolwich on much the same lines?—I should be in favour of following the same lines as far as possible; but, of course, that is more a military than a scholastic question. With regard to the abolition of the preliminary examination, I should like to point out, on behalf of the public schools, that boys are very thoughtless creatures, and it has been a very great help to us that they should be called upon to pass that examination at an early age. If an examination is put off to a far distant period, it is a very difficult thing to make a boy realize that he must work for some years in view of that examination. The preliminary examination had the effect of making the candidates for the Army some of the most industrious boys in the school. I do not know what is to happen in the future; but I should like to point out that if there is no test for a boy to pass at an early age, nothing until he comes up for the final examination, I think the authorities will find that his attainments will not be so great as they are now, when it is to the interest of all to pass a boy through an examination as soon as possible.

1747. Is there no way of doing that in your school?—We can do something in that way, but we cannot say to a boy, "you are rejected as a candidate for the Army." At present there is great pressure put upon Army boys, and at Harrow they give up a great portion of every half-holiday to work.

1748. Are the boys in your Army class superior to the boys on the other side of the school?—No, I think not; they are not so good as the boys who get scholarships in the Universities, but they are most excellent boys, and quite as good intellectually as most boys on the classical or modern side of the school.

[*The Witness withdrew.*]

Mr. J. S. Phillpotts, *examined.*

(*See* also Appendix VIII.)

1749. *The Chairman.* You are the Head Master of Bedford Grammar School, I believe?—Yes, and formerly I was an under master at Rugby.

1750. Would you like to see any alterations made in the subjects in Class I. of the present list for the Army examinations?—No, I think not. Under the new regulations of October, 1893, an aggregate is required in Class I., and it seems to me that that leads rather to chance, and tends not to act satisfactorily; I should have thought it would have been better to have required no aggregate. If a candidate got his marks, I should not enquire whether he got an aggregate in Class I., nor would I have any minimum in that class.

1751. It has been proposed to have in Class I. the following five subjects, making them all obligatory: mathematics, French, German, Latin, and natural science, to include chemistry and heat, how do you think those subjects would do?—I think the present Class I. much better. I hold that nature has given a great variety of gifts, and, therefore, I think there is great undesirability in requiring an absolutely uniform curriculum from every boy. With regard to science it seems to me that you test the requirements you want in that subject in the mathematics, and therefore I think you would be giving undue weight to some boys if you made mathematics and science both compulsory. Science is an excellent thing for the boy who has a gift for it, in fact it is a good thing for every boy to know some, but I do not think it wise, at the present stage at all events, to make science an obligatory subject in Class I.

1752. Would you approve of a plan by which ten of the subjects which enter into a general education were laid before a boy all marked equal, and he was told that he might take any five of them?—I think the present arrangement better.

1753. Some witnesses have objected to that plan, because, they say, it would lead to masters, and others, who know which are the best paying subjects in the way of marking, turning the education of all their boys on to a certain five subjects?—Probably that would be so; and I think the present scheme works better than any scheme of an open ten subjects would. The present system recognizes in Class I. a general curriculum as fixed by Education Commissioners and by general practice, and then gives in Class II. a fair choice of optional subjects. In the open plan candidates would avoid the difficult subjects which takes longest time.

1754. What do you say to the inclusion of English in Class I.?—If you mean English composition the only difficulty is that English composition is an exceedingly difficult subject to mark accurately or equally upon. As regards other subjects, chemistry seems to me to be somewhat discouraged at present, because, I think, sufficient marks are not given for the time required in the practical part of the subject. I would suggest giving 2,500 marks for chemistry, instead of 2,000, I think the higher range would more fairly represent the extra time given to the subject; if that is not done, then, under a system of competition, the subject may be pushed to the wall, because it takes more time to master than some of the other subjects, as physiography and geology, an easier subject for cram.

1755. How would you divide the marks as between practical and theoretical chemistry?—I would give somewhat the larger proportion of marks to the theoretical portion of the subject, but the practical work should be indispensable.

1756. Would you give higher marks than at present for the colloquial portion of languages?—No, on the ground that I think they are too "chancy" at present. Foreign examiners, do not seem to hit off the differences in marks so well as some of the other examiners. I think, as regards the colloquial part of languages, a great deal more might be done at Woolwich and Sandhurst than is done at present. Another way in which a knowledge of colloquial might be developed is this (supposing the War Office thought well of it)—during the time a successful candidate is waiting for his commission, I think some encouragement, say, in the way of a small grant, might be given to him to devote that time to the study of languages.

1757. Would not that involve another examination?—Probably, but there are even now examinations in languages to test those who are competent to act as interpreters. I think it would be only fair to give an Officer an opportunity of showing he had spent his time well, and if such a slight examination as would be necessary can be adopted, I would suggest that it should be carried out. Besides which, I think that the colloquial knowledge gained at that age would be more valuable, while the knowledge gained at an earlier age would be better devoted to securing solid ground work.

1758. *General Sir W. O. Lennox.* Would you propose to encourage physics more than at present?—No.

1759. *Lord F. Hervey.* Do you know what proportion of the marks assigned to chemistry and physics is given to the practical work?—No, I cannot say, but I should be very glad to know. Practical chemistry takes more time than practical physics, and should have more marks. With regard to the subject of languages, I should like to say that, the idea of asking some questions upon literature is excellent as an idea, but I am afraid that in the working out it will tend only to secure cram. I think the practice of asking questions on French and Latin etymology is a good practice, for this reason, that as a boy must take up two subjects, and if he takes those two, one helps the other in assisting the boy to form a vocabulary. On the subject of mathematics, my colleague has written a few remarks, may I be allowed to read them?

1760. *The Chairman.* Certainly?—He says, "With regard to elementary mathematics I would suggest that the papers should be better graduated, in a way similar to that adopted a few years ago; they appear to be set now rather to suit the feeble. Many boys have lately scored 1,200 to 1,500 marks without knowing much about the subject, whereas those who have toiled at it, and who possess ability, have found it difficult to score an extra 200 marks or so. The questions are, on the whole, in the very elementary parts of the subject, and a question or two of a harder nature is stuck on for the better boys, though even for them they are sometimes too difficult. Many boys honestly worth only about 500 marks have secured 1,000. I would not advocate much book-work, but I think some should be set, though the very simplest should not be chosen; I think more choice should be given, as in the Indian Civil Service examination, and the numbers of questions to be answered should be limited. With regard to higher mathematics I think they are not marked sufficiently high having regard to the time spent over them and their difficult nature. Here again the best boys appear to me to be handicapped, though there are a few questions too easy, and even the weak can do those; but the remainder of the papers generally give too much trouble to the better boys. In June, 1893, both for Sandhurst and Woolwich, I think the algebraic questions set in the higher papers might well have been delegated to the elementary papers; boys who had toiled at the heavy work beyond binomial (at such work, for instance, as inequalities, convergency, and divergency of series, theory of numbers, indeterminate equations) found no question to cheer them for their toil. It appears to me to be out of the question to try to do justice to boys' reading in only two papers. There used to

be four papers, and that number was not too many. Too much prominence is, I think, given to graphical statics; this branch could be better studied at the Academy instead of going over the elementary ground again. I think the differential and integral calculus should be restored as subjects for the entrance examination, especially for Woolwich. I have known cases where cadets have been forced to read these subjects with a coach both during residence and during the vacation. This would have been avoided had they taken up the calculus before entrance. The paucity of papers set now, and the comparatively low scale of marks will, I think, have a tendency to eliminate the higher mathematics from the curriculum of the schools. Out of 30 candidates who were successful for Woolwich in June, 1893, and who took up higher mathematics, only seven scored over 1,000 marks; it is true the top one had 1,967 marks, but that was exceptional."

Coming back to the question of English, it seems to me that one question that will come before you is this—Will a boy be plucked for spelling in dictation? Or (1) can you not secure good spelling by putting a high mark on it; or (2) will it be possible if a candidate is not sufficiently good in that subject for the Army standard, that he should be required afterwards to qualify before being admitted? With regard to the 1,000 marks given for English, I think they might be divided in this way: 300 for spelling, 100 or 200 for handwriting and neatness, 250 or 350 for an essay, as that is rather a difficult subject, and 250 for a letter, the details being given from which he could compose a letter, but the framework should be in such a fashion as not to enable the candidate to use the same expressions.

1761. *General Sir W. O. Lennox.* Do you think dictation is a good subject to examine upon; are you keen upon it?—I think boys must be made to spell.

1762. *The Chairman.* Is Bedford Grammar School a large school?—Yes, our number at present is about 800.

1763. Do you call it a public school?—Yes. We had last year one of the best football teams among the public schools.

1764. Have you an Army class?—Yes, we work a selection from the upper part of our civil and military side as a regular Army class.

1765. Have you any test before a boy can get into the Army class?—Yes, practically there is a test, because a boy must get into one of the top three forms before he can be admitted to the Army class.

1766. Are your boys successful in the examinations for Woolwich and Sandhurst?—I think we are fairly successful for Woolwich. The *Pall Mall Gazette* Public School Record of 18th November, 1892, credited us with 9 Woolwich direct and 13 Sandhurst.

1767. Would you like to see two examiners instead of one for every paper?—I think that the work of the Civil Service Commissioners is done very well; but if there is a change I think it would be well to have it made in the direction of the course followed by the Examining Boards of Oxford and Cambridge. It occurred to me that there might be a revising board to look at the standards for marking in certain subjects, and see whether they agreed with the marking in other subjects. For instance, a foreigner might feel very patriotic in regard to his own tongue, and might therefore be inclined to mark only fair work too highly; on the other hand a classical examiner might be very severe, and then there would be a difference in the two standards adopted; that is where the "personal equation" comes in, and that is where a central authority would be able to act beneficially. With regard to the changes made in October, 1893, under the present system a boy can pass from one curriculum to another, but if you put geography into your list, I think you may keep away some of the best boys, who otherwise could easily pass from your list of subjects to that required for the Universities, and *vice versâ*. Geography is not a thoroughly good educational subject; it is not one of the main subjects of the curricula of the schools, and besides that greater progress can be made in it by sheer hard work for a short time than in any other subject I know of.

1768. Would you be in favour of giving marks for physical development?—It seems to me to be desirable, but difficult, though I think you might hit upon some physical characteristics which are desirable, if the examinations were well conducted. In the case of a physical test it appears to me that there are two things to be avoided, one the giving of marks to subjects which are only open to the rich, and the other the giving of too much weight to gymnastics. A boy can put on an inch and a half in chest measurement in a very short time, but the moral qualities called out in the football and cricket fields are much more valuable to you in looking for Officers for the Army than mere gymnastic development. On the football field a boy develops that power of decision which it is very desirable you should get in your Officers. The tendency of intellectual examinations is to take away the boys from some of their physical exercise, and I can quite understand that it is a question whether some advantage should not be given to those who have done their intellectual work as well as, at the same time, maintaining their physical development.

1769. With regard to power of decision, do you think you could judge of a boy who would be likely to make a good Officer at 17 or 18 years of age?—I think one can judge of those things in a school. Some time ago I wrote out to the Resident in Burmah, "I can send you a man who will be first rate for your purpose in clearing a new country." The reply came back, "I will have him." So I sent out Mr. Bertram Carey, who is now Chief Political Officer in Burmah, and has lately been decorated.

1770. Do you see any advantage in having tests in running and jumping?—I think variety is a desirable thing; I think the boys should be able to compete in every branch.

1771. Would not that lead to the boys going in for training?—That depends entirely upon how the examination is conducted, but I think all the difficulties could be met.

1772. You are aware, I presume, that the military authorities do not make any complaint with regard to the boys they get now?—Yes.

1773. That looks rather as if the medical test was sufficient, does it not?—Yes, but the point is, do you always get the best boy?

1774. Then may we take it that you think a physical test is desirable if found possible, and further that you do not think the difficulties are insuperable?—Yes, but I want to guard against getting those who are merely gymnasts, you want some test of the moral qualities, such as you find in the captain of a football team, for instance.

1775. *General Sir W. O. Lennox.* The total number of marks given now is 14,000; what proportion would you like to see given for a physical test?—I would like to give such marks as would just turn a doubtful scale in favour of the candidate with a good physical development, and would deter candidates from giving up their usual physical exercise while preparing; and I think a small number, say 500, would be sufficient for that purpose.

[*The Witness withdrew.*]

FRIDAY, 8TH DECEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
Lieut.-General Sir R. GIPPS, K.C.B., Military Secretary.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Dr. W. A. HUNTER, M.P.
Mr. H. J. ROBY, M.P.

Mr. R. H. BRADE, *Secretary.*

Surgeon-Major-General J. JAMESON, M.D., *examined.*

(*See* also Appendices XVIII. and XXXIII.)

1776. *The Chairman.* You are Professional Assistant to the Director-General of the Army Medical Department, I believe?—Yes.

1777. Do you represent the Director-General on this occasion?—Yes.

1778. Judging by your own experience, do you think the class of young men entering the Army now is less well physically developed than the class entering 30 years ago?—Comparing the measurements of candidates that we have just made with those published by the Anthropometrical Society, we find that our *maxima* are a little less, but our average is greater. We have to consider what we call the mean, as well as the average, in making comparisons. In taking the mean, the numbers are grouped as in the following table, which shows the heights (from actual measurement) of 430 English public schoolboys of the age from 11 to 12 years, and out of that 430 boys, a great number, as will be seen, were between 53 and 54 inches in height:—

	Height in Inches.	Number of Boys in each Group.	Remarks.
	60	3	Giant boys.
	59	4	
	58	12	
	57	22	
	56	36	
	55	54	
	54	79	
Typical ..	..	..	Typical, or mean boy.
	53	78	
	52	59	
	51	35	
	50	29	
	49	12	
	48	4	
	47	3	Dwarf boys.

Here are some tables which serve to illustrate the physique of the young men we get now, as compared with the standard physical measurement of the same classes throughout the kingdom. Table I. is the standard as arranged by the Anthropometrical Society. Table II. shows the measurements with regard to the candidates for Sandhurst in 1889, and Table III. shows the measurements of the Militia and University candidates who came up at the last examination, that is, in November, 1893. (*See* Appendix XVIII.)

1779. With regard to the Sandhurst candidates, I ought to point out that a certain latitude is allowed in the case of young men who are shown to be likely to develop. Have you compiled any table giving similar details for ten years ago?—No.

1780. Can you let us have some such tables?—Yes, I think they can be prepared. (*See* Appendix XXXIII.)

1781. With regard to the latitude allowed for Sandhurst, do you wish to see the practice of taking the candidates in at their own risk, as it were, continued?—Yes, I think that is a very good rule, because very often a young man, owing perhaps to race, or to some personal circumstances, is late in developing, though by the time he completes his course at Sandhurst, he may be well over the standard.

1782. What are the principal characteristics you ought to look for?—The thing that we put the greatest faith in is what is called the physical equivalent, that is the correlation of height, weight, and chest girth, chest expansion and pulmonary play, that is, the play of ordinary breathing, in relation to age.

1783. *Mr. Roby.* Does pulmonary play differ from a comparison of full and empty chest?—Pulmonary play is the play of the lungs in ordinary breathing. It varies from 2 to $2\frac{1}{2}$ inches between inspiration and expiration, whereas the difference between full and empty chest in forced respiration sometimes equals as much as 7 inches. It indicates the vital capacity of the lungs.

1784. How do you measure pulmonary play?—By the difference in measurement of chest walls in ordinary inspiration and expiration.

1785. *The Chairman.* Are your requirements sufficiently met by the present medical test, or would you suggest any improvements?—I think there is nothing better than the medical test we now employ. In our list of instructions sent to intending competitors, we say that attention should be directed to various points, and among others that a candidate's "height and chest measurement are such as give promise that before obtaining his commission he will reach the present minimum standard laid down for recruits, viz., height 5 feet 4 inches, chest measurement 33 inches; that his vision is sufficiently good to enable him to meet the required tests"; but those tests in regard to vision are not very strict; "that his hearing is good; that his speech is without impediment; that his teeth are in good order, loss or decay of many being considered a disqualification;" but there is no regulation which lays down the number of teeth lost or decayed, that ensures rejection.

1786. To what is the decay of teeth supposed to

point?—Sometimes to a bad constitution, sometimes it is a result of inherited syphilis, sometimes it arises from bad diet, and sometimes from a severe illness. We certainly look upon bad teeth as a bad sign in regard to a candidate's physical condition, and if there were also other bad signs we should reject him irrespective of the number of teeth lost. "That his chest is well formed, and that his heart and lungs are sound; that he is not ruptured; that he does not suffer from varicocele or varicose veins; that his limbs are well formed and fully developed; that there is free and perfect motion of all the joints; that his feet and toes are well formed; that he does not suffer from any inveterate skin disease; that he has no congenital malformation or defect; that he does not bear traces of previous acute or chronic disease pointing to an impaired constitution." In working out our physical equivalents we do not, in practice, take all the equivalents; for weight of body is not recorded, and the measurement of the chest taken is the one after an ordinary expiration. If the measurement were taken after a forced inspiration followed by a forced expiration, the girth would be less by a $\frac{1}{2}$ inch or $\frac{3}{4}$ inch; but we would obtain a knowledge of the vital capacity of the lungs, and that is an important matter not sufficiently regarded in the hurry of examining a large number of candidates. In the case of the ordinary recruit, he knows that the minimum for chest is 33 inches, and he takes very good care never to come below that if he can prevent it. You might have a candidate with a minimum of 32$\frac{1}{2}$ inches, and a maximum of 38 inches, and another with a minimum of 33, and a maximum of 35; under the present regulations, the second one would be accepted, but the first, notwithstanding his very fine chest, would be rejected, unless we stated that he was likely to improve at Sandhurst.

1787. *Mr. Roby.* With reference to the present system of measurement, would you suggest any new rules?—Yes, I would suggest that an actual minimum be obtained, in order to see the real difference between the maximum and the minimum.

1788. Would you substitute pulmonary expansion for the present minimum, as being the difference between the utmost maximum and the lowest minimum?—Yes.

1789. *Lord F. Hervey.* What, on the average, is the difference between the full lungs and the empty lungs?—We find with recruits that it is from 2 inches to 2$\frac{1}{2}$ inches; if we get a difference of only 1 inch we look upon the person with the very greatest suspicion.

1790. *The Chairman.* Is there any other way of testing physical fitness except by means of certain measurements?—I do not know of any games or exercises that could be made reliable in all cases.

1791. Would you be in favour of marking for physical fitness according to measurements or not?—For the physical equivalent I would; I think it might be made applicable in all points to the man who was near the mean, that is to the man who is as near as possible a perfect man,

1792. *Mr. Roby.* Would you be inclined to give marks in a competitive examination for their approach to that mean?—Yes.

1793. Would you mark that highly; what proportion do you think there should be between the physical and the intellectual tests?—10 per cent. would, I think, be exceedingly liberal.

1794. *The Chairman.* Do you think that difference in race accounts for difference in physique?—Yes, to a considerable extent.

1795. Then how would you deal in marking men of the biggest race?—I think some of their marks would have to be discounted, but even then it would be an extremely difficult thing to carry out. Scotchmen are much the highest in chest girth, and also the heaviest of all races.

1796. *Mr. Roby.* Have they the largest pulmonary expansion?—That I can hardly say; but I presume they have, as the two things often go together. The Irishman is the second tallest, but he is the least in weight. The Welshman comes second in weight but last in height. The Englishman is the typical man; he is next to the Irishman in height, though he is behind the Welshman in weight.

1797. *Lord F. Hervey.* Are these distinctions definitely attributable to race?—They are supposed to be chiefly due to the Scandinavian blood that is to be found in some north country people.

1798. Is there not a test of physical power called the "hand-grip"?—Not with us; but there is such a thing in the general medical practice, and it is also recognized by the Anthropometrical Society.

1799. Have you ever seen that test applied?—No, I have not.

1800. Do you know whether it is a reliable test?—I do not think it is; it depends so very greatly upon the education of a man's hands; such a thing as that can, by means of horizontal bars and other things, be trained for, and if it were applied as a test I am afraid it would resolve itself into a sort of physical cram.

1801. *The Chairman.* That is a great objection, is it not?—Yes, and it is an objection which can be made to almost every exercise you can mention, so far as a practical physical test is concerned. It seems to me that in the matter of physique you can get nothing so good as the teams of Rugby football players, and if you could recruit entirely from them you would have the finest men in the world.

1802. Can you say anything with regard to the present class of young Officers in hot climates?—They suffer as all young men do in their first years of service in hot climates.

1803. Is that due to their want of physical development?—It is due entirely to youth.

1804. *Mr. Roby.* Do you think that these young men do not sufficiently understand the whole difference to them of a hot climate?—Some are very careless, no doubt, but they soon get into the ways of the country. I do not think there is, speaking generally, any want of caution on their part.

1805. *The Chairman.* What do the young men suffer from as a rule?—The disease so fatal in India is enteric, or typhoid fever.

1806. Do the Officers suffer more in proportion to their numbers than the men?—I think the results are about even.

1807. *Mr. Roby.* Is the bad effect on the troops due to bad drainage and bad water?—That is a difficult point to decide; it is not due to one cause alone, there are several. Enteric is very largely due to chills as an exciting cause. But in every cantonment in India filth germs abound, and if (by depression of the vital powers from chill, fatigue, or other cause) the system gets below par, it is less able to resist the invasion of disease.

1808. *The Chairman.* Do you think that 33 inches for chest measurement is sufficiently high?—Yes.

1809. What do you think would be the effect if we put it up half an inch, would that disqualify many?—Yes, I think so.

1810. Would you say 25 per cent.?—I cannot say what the percentage would be.

1811. *Mr. Roby.* Would you raise the girth in proportion to height?—Yes, I would always have a physical equivalent.

1812. *The Chairman.* Do not young men develop very much in chest measurement between the ages of 18 and 21?—Yes.

1813. Would you be able to allow for that?—Yes, to a certain extent. There is a great difference between the physique of the Officers and the physique of the men; an Officer well fed, and placed under good sanitary conditions, will attain a height 2 or 3 inches above that of the labouring man. At 19 years of age a well-to-do man is higher than a labourer by 2 or 3 inches, heavier by 10 or 20 lbs., and 2 or 3 inches more in girth.

1814. Do you mean that the private soldier will

develop later?—Yes, he may pass the other man by and by, no doubt, but it takes some time to do it

1815. *General Sir W. O. Lennox.* Is that due at all to wrong ages being given; you know the age of an Officer, but not of a man?—I was speaking more from the results of the anthropometric tests.

1816. *The Chairman.* One witness has suggested giving a certain aggregate of marks for a physical examination, the total to be divided between marks for a medical test, so many for running, riding, jumping and gymnastics, would you object to such a thing as that?—Yes, I would not give one candidate any marks as against another candidate. All things should be in proportion; as a rule height is the best thing to go by, because that usually gives strength.

1817. *Mr. Roby.* What is your opinion of the Army generally; do you think of late years they are of a physically inferior type to what they were before?—I think not. I have met many regiments lately, and I have always been struck with the impression what fine men they are.

1818. Generally speaking, do they bear the service in India worse than they did before?—Everybody does that now.

1819. Worse?—Yes, typhoid fever is increasing at an alarming rate in India. Going back to the question of sight, I should like to say that our present requirement is that it shall be one-sixth normal vision; that, I think is lax, because now-a-days an Officer requires long sight so as to be able to recognize signals.

1820. What would you propose?—The test would still be exceptionally liberal if it were one-fourth instead of one-sixth, and that should be without spectacles, and for both eyes. I do not think, personally, that it would be quite fair to require normal sight, as at present tested, because our light is bad as a rule, and if a boy comes up to the normal vision he has really better than normal vision, because to test him fairly, we ought to have sunlight all round us.

1821. *Lieut.-General Sir R. Gipps.* With the ordinary average case, how long do you think it should take a Board of Examiners to medically examine a candidate?—It all depends upon the kind of test you have; if you want all the equivalents it will take some time, about 10 minutes, I think.

1822. Then may we say that on the average, 10 minutes would be ample to allow for each candidate?—Yes, that is so.

1823. *General Sir W. O. Lennox.* Is there a table of physical equivalents?—Yes, the Manual of Anthropometry, by Dr. Charles Roberts, gives all the equivalents. There is a rule for doing it practised in the American Army, and it is this: for every inch of height you multiply by 1·85, and that will bring out in lbs. what the weight should be.

1824. *Mr. Roby.* Suppose you wanted to assign a value, in a competitive examination, to a physical test, can you get the physical equivalents, that is, chest girth, height and weight, expressed in one range of compound figures?—A scale of measurements (showing the proper correlation of height, weight, chest girth, and vital capacity of lungs, in relation to age) might be prepared, and could be made serviceable as a physical test. Accuracy and uniformity in chest measurement would be essential, and the existing method would require some modification. One way of finding the standard chest girth is by taking half the height, *plus* half an inch, up to 5 feet 7 inches; from that up to 5 feet 10 inches it is exactly half the height, and from 5 feet 10 inches upwards it is a little less.

1825. *Lieut.-General Sir R. Gipps.* Do you think it would meet the case if a Medical Board reported upon the candidates for commissions as Officers in the Army in this way: 1st, as being in every way desirable; 2nd, as being physically fit; 3rd, as likely to become fit; 4th, as unfit?—There would be no difficulty in carrying out such a plan as that.

1826. Do you think that marks could be given for the first two?—I do not think there would be any difficulty in the Board assigning marks for the first two, but, of course, some standard would have to be decided upon.

1827. Do you not think that in that way we should get a better knowledge of the physical standards of Officers of the Army?—Yes, undoubtedly.

1828. From your own knowledge and experience, would you recommend something of that sort being done?—I think so; my own impression is that it would be a good thing to do it. I think I would have the marking in graduations, 500 being given to the typical man and less to the others.

1829. *Lord F. Hervey.* In the conditions you have read, no mention is made of scrofula or albuminuria?—It is impossible to mention all things, but scrofula is so apparent, that it is not necessary to mention it. Albuminuria we do not always test for.

1830. Do you ever?—Not as a rule, but if there were symptoms of dropsy, or any puffiness under the eyes, then we should do it.

[*The Witness withdrew.*]

General Sir G. T. Chesney, K.C.B., C.S.I., C.I.E., R.E., M.P., *examined.*

1831. *The Chairman.* I believe you have seen considerable service both at home and abroad?—Yes, I have served in India for about 30 years in various capacities. I was also, for some 10 years, 1870 to 1880, Head of the Royal Indian Engineering College at Coopers Hill.

1832. In your capacity as head of that establishment, had you to do with the studies as well as the discipline of the students?—I had the whole conduct of the arrangements for both, and I was responsible for both, as well as for the entrance examination.

1833. *Mr. Roby.* What was Coopers Hill at that time intended to do?—It was established for the purpose of supplying a staff of civil engineers for the Indian Public Works Department, a large service comprising about 100 Officers. Fifty men were admitted every year, and the course lasted three years, so that there were 150 men in residence. During the fourth year they were distributed about the country under civil engineers for a course of practical work; for that year also they were under my supervision.

1834. *The Chairman.* Do you agree with the present syllabus for the Sandhurst and Woolwich examinations?—I think those examinations are ingeniously contrived to secure unsatisfactory results. I apprehend that the object in view is to secure the best raw material for the Army, that is, young men naturally fit in point of mental and physical capacity, but it seems to me that the examinations altogether check the flow of the sort of material which I think, under a better system of examination, you would attract to the Army.

1835. What do you consider should be the object of these examinations?—I think the object should be primarily to test the mental capacity of a candidate, and that this may best be done by dealing in the examination with the regular school work ordi-

narily in force in English schools, in order to find out the degree to which that mental capacity has been utilized in his school work. I think the examination should be so designed that a boy coming up from a good form of a public school should be able to secure a place without having to undergo any special or particular training; I think it should be a test of education, and not a test of training.

1836. Do I understand that you would make the public schools work up to your standard instead of reducing it to suit them?—I would not have a standard for Woolwich; I think if you have a perfectly open competition you thereby secure an intellectual standard, created by the abilities of those who compete. With regard to the subjects of the examination, considering how important a knowledge of modern languages is for an Officer, and how desirable it is for him to acquire that knowledge early in life, I would make it a condition that every candidate should know French or German. The same consideration applies to mathematics, a knowledge of that subject should also be a necessity; it is essential for an Artillery or Engineer Officer, and therefore it is a great advantage if he enters your college with some previous knowledge of mathematics. I would, however, not require a very extensive knowledge in these subjects, because I think all experience shows that if you get hold of a clever lad who has been well taught in any branch of school work, you will be able, afterwards, to give him any degree of education in these subjects that may be required.

1837. *Mr. Roby.* Would you lay equal stress upon mathematics, and French, and German for Sandhurst and Woolwich?—Undoubtedly an Officer in any branch of the Army must know something of mathematics, in order to be efficient in field surveying for instance, but I doubt whether in the time allowed at Sandhurst, you could impart the necessary amount of mathematical training. I think, therefore, a certain minimum should be required for Sandhurst. For Woolwich, I think it ought to be the same, up to and including trigonometry.

1838. *Mr. Hunter.* Do you consider that there ought to be a higher standard for Woolwich?—No.

1839. Would you include or exclude the calculus for Woolwich?—That opens up a large question. At present the calculus is excluded from the examination, and in that way I think a great discouragement is given to the most important part of a candidate's studies. It is like sending a man into a fight with one hand tied behind his back. It is impossible to give a student an adequate conception of higher mathematics without the calculus, and, therefore, I would give every encouragement for candidates to bring up, if possible, a considerable knowledge of mathematics, including that subject, but I would not make it obligatory.

1840. *The Chairman.* Would you like to see any subjects substituted for any of those now in Class I.?—I have no objection to the present subjects, but I think an excessive allowance of marks is given for only a very elementary knowledge of mathematics; I would certainly not require a knowledge of mechanics, as taught in this elementary form, as an obligatory subject. If you require a knowledge of mathematics up to plane trigonometry, that you might reasonably expect from any and every boy who is in a good form in a public school. We know that in many of the best public schools those who do well in classics are not encouraged to follow mathematics to any length, and that is why I think the examination should be so arranged that a boy coming up straight from a good form in a public school should be able to get a place at once.

1841. Would you have both French and German?—No; I think if you make one of them obligatory that will be enough.

1842. Would you increase the marks for the colloquial, they are 200 now?—No, I think 200 enough. A colloquial knowledge is very much a matter of chance, and if a boy has lived abroad at all he has acquired that knowledge without any effort on his own part. It is a useful thing, no doubt, but it is not in any way a test of mental capacity.

1843. Do you attribute any importance to Latin, or would you substitute something else for it?—I would not make it an obligatory subject, though I would allow Latin to count very highly as a test of education. I am thinking now rather of what should be absolutely required, in order to get a place at all, and for that I should have one language, and elementary mathematics, but further than that I would not make anything obligatory, not even in the technical sense in which the word "obligatory" is now used.

1844. *Lieut.-General Sir R. Gipps.* Would you make those two subjects really obligatory by requiring a minimum in each?—Yes.

1845. *Mr. Hunter.* Would you require some knowledge of geometrical drawing?—On no account; that involves taking a lad away from his ordinary school work for the purposes of these examinations, and further than that, my experience is that the sort of geometrical drawing that is taught in schools is of very little value. I would say the same with regard to free-hand drawing, because as now taught at most schools it is worthless. There is no doubt that geometrical drawing, as a part of the technical training to be given later on, is of great importance, but my experience has been that, if you get a clever young man, you can give him all that when he comes to you, and he is very little better for giving up a great deal of time to the subject beforehand.

1846. *The Chairman.* How many subjects would you allow the candidates to take up besides the one language and the mathematics which you wish to make obligatory?—They might take what they liked, upon the condition that only a certain minimum should count at all; I would discourage any smattering of knowledge.

1847. What percentage would you make as a minimum?—It is difficult to say off hand, it all depends upon the amount of difficulty you introduce into the examinations. If the examination is to be of an elementary kind, such as is now required, then you might have a very high minimum, but if you are going to have an examination in mathematics and classics, such as I think it ought to be, to bring out the powers of the really good men, then there must be a somewhat lower minimum.

1848. *Mr. Roby.* Do you lay any stress upon English in any form?—No; I think it is essentially a cram subject.

1849. *General Sir W. O. Lennox.* Have you had any personal experience of the system of deducting a minimum number of marks, and allowing only the rest to count?—I have watched the effect of that in the Civil Service competitions.

1850. Do you like that plan better than the one in which you say to a candidate, "You shall take only a specified number of subjects"?—I think there is a good deal to be said for both plans. The objection to limiting the number of subjects is that you sometimes find a many-sided man who has a great capacity for doing many things well, and I think such a man should get the benefit of such a capacity.

1851. Supposing the teachers said it would rather tend to dispersing the attention of the scholars if we allowed them to take up many subjects, would you be inclined to agree with the teachers?—You must be very careful as to the proportion of marks you attach to the different subjects, because then if you limit the number of subjects, you drive candidates into taking up some possibly unimportant subjects to the exclusion of others.

1852. If subjects are to rank at all in this examination, ought they not to be equally marked in regard to each other?—It is impossible to do that always; for instance, you cannot fairly put French and Greek in the same line, because the time required to master

Greek is so very much greater than the time required by an English boy to master French.

1853. *The Chairman.* Might not the open plan have the effect of making the master choose the highest marked subjects, and in that way tend to drive education into one particular channel?—That, I think, is to be remedied by having a high standard with a high minimum; the great object is to encourage thoroughness of knowledge. As I pointed out some years ago, in an article in the *Edinburgh Review*, on the Indian Civil Service examinations, where physical capacity is not so much required, the point should be to secure the very cream of the Universities, and therefore I think the senior classic or the senior wrangler should be able to get in by the very force of his powers in his own line. Under the system adopted at present by the Civil Service Commissioners, those men could not get in upon mathematics or classics alone, without taking up some other subjects, and that fact, I think, condemns the present system. On the one hand, they make the papers so difficult in mathematics and classics that it is impossible to get a large proportion of marks in those subjects; while, on the other hand, the papers in French and Sanscrit are so easy that a lot of marks can be made out of them. Those remarks apply somewhat to the Army system, and therefore I think it is better to allow a free option with a very high minimum.

1854. *Mr. Roby.* Would you assign the same maximum marks to all subjects?—Certainly not.

1855. *Mr. Hunter.* Would it be possible to group the subjects together (say) in this way: (1) mathematics and natural philosophy; (2) Greek and Latin; (3) logic, moral philosophy, and English literature; (4) chemistry, zoology, botany, geology, and mineralogy; make all those groups equal to one another, and give them each 1,000 marks?—Yes, that might be done; I would add French and German as another group. It must, however, be remembered that there is always the assumption running through the examiner's mind that a lower standard of relative knowledge may be expected in science than in languages.

1856. Have you considered whether it would be possible to get the different examiners so to work together as to see that the same standard was required in all subjects?—I think it should be the duty of someone to secure this. At Coopers Hill it was my duty to do it, and I endeavoured to ensure a fair equality of standards.

1857. *Mr. Roby.* Did you look over the papers before they were set?—Yes.

1858. Then how about marking the answers?—My experience is, that the older and more practiced the examiner, the fairer he gets to be.

1859. But there might be different standards in the minds of the examiners for French and German?—That might be so.

1860. Have you thought of any system by which those standards might be co-ordinated?—We required the examiners to give the best men full marks, and, in the case of special excellence, more than full marks, so that the standard in that subject might not be unduly lowered by the exceptional ability of one candidate.

1861. *General Sir W. O. Lennox.* Who carried out your examinations for entrance to Coopers Hill?—Examiners from all parts of the country, who were appointed by myself, but they were not in any way connected with the College.

1862. *The Chairman.* Have you formed any opinion as to whether it is desirable or not to have candidates coming up from the Universities?—I think it is most desirable, if you can get the right stamp of candidate from them.

1863. Is it not a fact that very frequently the University candidates show up very badly in the examinations for the Militia?—I am not prepared to offer an opinion on that point, but it is very possible you do not get the right sort of men from the Universities; the fact is, the attractions of the Universities are very strong. One condition that should be kept in mind, in order to secure the best class of candidates, is, that they should not be thrown out of their ordinary career of life in coming up for those examinations; and that is, I think, a very strong reason for not making the schools follow you; you should allow the ordinary school work to take a fair place in the examinations. Our experience at Coopers Hill was that, provided we got good raw material, we did not much care what they had learned before they came up. Of course, we had them for three years; and in reference to that I should like to say that I think the present term at Woolwich is insufficient. If you gave the cadets only a general education, and not a special training at Woolwich then I think the two years' course would be sufficient, provided it were followed by a special course after they got their commissions.

1864. *General Sir W. O. Lennox.* How long would you propose to make the Woolwich Course?—Two and a-half years. It did last that time when I was a cadet, and then engineering and artillery science was very much simpler than it is now. At that date the age for admission was, I think, from 14 to 18.

1865. *Mr. Roby.* Was not the course generally longer on account of the average age being younger than it is now?—No, I think two and a-half years was thought to be the proper time required for training. Yet the whole thing was simpler than it is now, and the Engineers went through a subsequent course at Chatham in 20 months, which was quite sufficient for the purpose, though I think it was a very badly-arranged course. If a longer course at Woolwich was necessary 40 years ago, it is still more necessary now; and I think when you consider how the Artillery are scattered about in many different fortresses, that it is most desirable to have young Artillery Officers well educated before they enter on regimental duty.

1866. How does our course compare with that pursued in Germany?—There an Officer has three or four years' training from the time he has joined the military school to the time he joins his regiment.

1867. *The Chairman.* Do your remarks with regard to a minimum of subjects apply equally to Sandhurst?—Yes.

1868. How would you like to have only one examination for the two?—If you do that, I think it would be impossible to predict how the candidates would take the thing; if the course at Sandhurst is much shorter than the course at Woolwich, then I think a large proportion of young men would elect for Sandhurst, because they would get their commissions more quickly, and in that way you might lose men who would be very valuable in the Artillery and Engineers. If, however, you have a more general test for both places, it is very necessary to improve the education given at Sandhurst, for at present, with their four hours' study a day, it appears to me that there is very little done there, and what they do is more in the way of training than education. For instance, I think such a subject as military law should come later in life; young men do not appreciate those things at the time, it would be far better to leave the study of them till after they have joined the Army.

1869. What would you suggest should be done at Sandhurst?—Seeing how few opportunities there are in after life to study foreign languages, I think it is a very great pity, and also a serious loss to the Service, that they do not take up those things at Sandhurst. I would also allow those who wished to do so to pursue mathematics there, and I would certainly increase the number of hours for study in the college.

1870. Did your boys from Coopers Hill undergo any physical test before being admitted into the Indian Engineering Service?—There was simply a test as to medical fitness.

1871. Do you think it is possible to have a physical competitive examination for the Army?—I do not see

how any satisfactory system for that purpose can be established, especially when you consider that what you have to guard against is liability to disease, and the most fatal diseases seem to strike a victim without any reference to his physical capacity. No physical test whatever would ensure safety against enteric fever or cholera. Of course if the candidate who presents himself has an obviously insufficient bodily development, he ought not to be admitted into the Army, but I do not see how you can differentiate beyond that

1872. *Mr. Roby.* Some have said that the athletes are kept out, and that we ought to get them in?—I have a very strong view that you cannot get a finer set of young men on the whole than you now have. The British subaltern of the present day is an excellent article.

1873. Are they physically, as well as mentally, better than they were?—Yes, they are decidedly superior to the men of my day. The growth of athletics in late years has given an enormous stimulus to physical development, and my own experience is that the man who is intellectually good is usually also a good man physically.

1874. Have you seen much actual campaigning in India?—I have had some practical experience of that.

1875. Have you noticed at all whether persons who seem externally to be the more physically capable have more endurance, or less endurance, than others?—The point is, what are the qualities most required of an Officer in command of troops? It is not the power to run several miles, or the power to carry a knapsack a long distance; I should say the bes tthing to have is an even cheerful temper which makes the best of things, a readiness to overcome difficulties, to show a good example to his men under hardships, and a power of decision when you get into a tight place.

1876. Would you say that the quality required is more a nervous quality than a physical one?—Perhaps so. What you want in an officer in command is a readiness to accept responsibility, and power to make a decision at a critical moment; they are qualities which a subaltern may be called upon to exercise as well as a General. During the late war in Burmah we had no less than 100 different columns out in the field at one time, many of which were commanded by Captains and Subalterns, who were acting independently of the rest, and in those cases everything turned upon the power of the command of the Officer in charge, and upon his courage too—muscular power he was not called upon to exert. Very often men who distinguish themselves very much are not the men from whom, at first, you expected anything. No actual test can be applied to such requirements as those.

1877. *The Chairman.* Have you anything to say with reference to the present general system of the examinations?—I think the delay which takes place in publishing the results has a very bad effect; sometimes six weeks elapses between the examination and the date of notifying the results.

1878. Would not the difficulty be in some way met if the examinations were put nearer the end of the schools' term?—That would be one way, but I think the results ought to be got out in a very much shorter space of time. The papers are very short and very easy, and there is a large staff of examiners, and therefore I think a week is a fair allowance of time in which to bring out the results.

1879. *Mr. Roby.* It is most important in an examination like this that the same examiner should look through all the papers upon one subject, is it not?—Undoubtedly.

1880. Would not that necessarily take up a large amount of time?—There are probably only 500 or 600 papers to be looked over by each examiner, and they could be done in three or four days. At Coopers Hill it was absolutely necessary to declare the results quickly; the examinations were always finished on a Monday morning, and the results were published on the following Wednesday. The papers which took the shortest time, papers like those on the calculus, which very few took up, were kept to the last. One examiner looked over the whole of the answers in any particular subject, and a staff of the College Professors collected the marks for the results. They began on Monday evening, and did not stop until they had got out the results; so you see they did the work in one day and two nights.

1881. How long was a candidate allowed for each paper?—About three hours.

1882. *The Chairman.* Were the papers checked in the marking?—No, there were so many examiners that that was not considered necessary. With regard to Class III. subjects in the Woolwich and Sandhurst examinations, I should like to point out that as every man takes them up they have no practical effect in determining a man's place in the competition. I think those subjects are useless for the purpose for which they were included in the list, and really all they show is that candidates have been taken off their own particular work in order to go through this special grind.

1883. *Lord F. Hervey.* Do you think geometrical drawing is useless?—It is very nearly useless as taught to the candidates before they enter Woolwich and Sandhurst.

1884. *Mr. Roby.* Has not the teaching of the Class III. subjects considerably improved at the schools?—Yes, to some extent; but I think it is a waste of time to learn geometrical drawing, for instance, instead of spending the time on foreign languages.

1885. It has been suggested that we should put in descriptive geometry?—I think that is better taught when they are older; it is a very valuable subject, and capable of high application, but I do not think it is one for a schoolboy to learn.

1886. Would you take the subjects well taught in the schools as a means of selecting candidates with with the greatest capacity, without any regard to their work afterwards?—Yes. It occurs to me that as a test the papers now set are not sufficient in quantity. I do not think in two short papers you can differentiate candidates properly. If you expect an advanced candidate to show what he can do you must give him more papers. Then in some subjects, as in Greek for instance, the questions set seem to me to be sometimes hardly a fair test. Cram questions in dates and history ought not to have the same value attached to them as Greek verse composition.

1887. *General Sir W. O. Lennox.* Would not increasing the length of the papers very much lengthen the examination?—Increasing the number of the papers would not, I think, greatly increase the length of time; one man would take one paper and another man another. And, as I have said, I think some of the subjects which are now included might be left out with advantage.

1888. *Mr. Roby.* Are you inclined to lay much stress, in these examinations, upon the physical sciences?—I think if a candidate brings them up in good form, that is, if he has a really considerable knowledge of physical science, he should get the full benefit of it.

1889. Would you make them obligatory in the sense of everyone bringing up something?—No, if you do that you narrow the mouth of the net into which you wish to draw the candidates; though I would encourage natural science in every way.

1890. *General Sir W. O. Lennox.* But if boys come up with a different amount of knowledge in, say, electricity, how can they work together afterwards?—The subsequent work should be done in the laboratory where every student should work by himself without any reference to the training of his colleagues.

1891. *The Chairman.* Would you mark all these subjects equally, except the two really obligatory ones?—I think an attempt might be made, possibly, to give them equal values, but it is a very difficult thing to manage unless you have very careful supervision over the examiners.

[*The Witness withdrew.*]

FRIDAY, 15TH DECEMBER, 1893.

Present.

Lord SANDHURST, *Chairman.*

Members.

Lord F. HERVEY.
General Sir W. O. LENNOX, V.C., K.C.B., D.G.M.E.
Sir H. ROSCOE, M.P., F.R.S.
Mr. H. J. ROBY, M.P.
Mr. C. A. WHITMORE, M.P.

Mr. R. H. BRADE, *Secretary.*

Mr. W. J. COURTHOPE, *further examined.*

(*See* also Appendices XXIX.-XXXI.)

1892. *The Chairman.* We have, during the course of this enquiry, had three or four schemes put before us for the purpose of grouping together the various subjects for examination. Those schemes do not differ very much from that followed by the Civil Service Commissioners except in one respect, and that is this, that German should be included in the obligatory subjects, and out of three, French, German and Latin, the candidate should be allowed to take any two. Do you think that would be an improvement on the present system?—I do not think it would work so well as the existing scheme, for three reasons—First, I object to it on educational grounds; secondly, I think it would tend to restrict the field of selection; and thirdly, I do not think it would offer such a good test examination. According to the educational arrangements existing in almost all the public schools, a boy has to follow the ordinary curriculum (which includes Latin as an obligatory subject) up to a certain point in the school before he is allowed to join the Army class. But if the scheme were changed in the manner proposed, the effect would be that almost all candidates would take French and German in preference to Latin, merely because it is much easier to score marks in the two former subjects. The tendency of such a change would therefore be that boys would be sent to private tutors where they could be coached in these subjects from the very first, rather than to the schools where they would perhaps have only two years' special training in them. To that extent you would therefore narrow the field of selection.

1893. How would it do to mark Latin more highly, give it, say, 3,000 marks?—Though that would be perfectly fair, it would have the effect of keeping things as at present; everyone would then take up Latin in preference to German on account of the larger number of marks. I do not see any object in such a change, because undoubtedly the candidates would select the more highly marked subject, and in that way you would limit the power of choice which you seem to offer.

1894. Then does it not come to this, that whatever we like to put before the masters of the public schools they will adapt themselves to?—I do not think they could do so under existing arrangements.

1895. Every one of the masters we have had before us has said they would do so. If we put German as one of three subjects, any two of which may be taken, would it not have the effect that instead of instructing boys in Latin for the Army class they would instruct them in German?—No doubt they might do so, but that would upset all the present arrangements under which boys get into the Army classes.

1896. Do you think the convenience of the schools should be the paramount object?—It must be a paramount object if we are to carry out the principles which the Royal Commission of 1869-70 and the military authorities laid down for our guidance.

1897. *General Sir W. O. Lennox.* In what way?—The military authorities said they wished to get boys from the public schools into the Army.

1898. The War Office never mentioned the convenience of the public schools?—No, but they said they wanted boys from those schools, and if you are to get them you must harmonise the examinations, as far as possible, with the school curriculum.

1899. If the public schools said they could carry out any arrangement, could we not ask them to do so?—Yes, certainly, if they said so after full deliberation.

1900. *The Chairman.* German is a very useful subject, is it not?—A very useful subject; and the statistics show that it is taken by a large number of candidates. It is not, however, a subject universally taught to all boys.

1901. Is not German now-a-days an essential thing in education?—I think not. If a boy takes one modern language it is as much as he can very well do according to the present established curriculum of the public schools.

1902. *Mr. Roby.* Some witnesses have spoken rather against giving equal marks for French, German and Latin, on the ground that they require different amounts of time to master them?—Such is the case.

1903. Would you be inclined upon that ground to mark Latin higher than German or French?—Assuming the present scheme was done away with?

1904. No, on the present scheme?—I think it is not necessary to do so at present, because Latin is made an obligatory subject, and they all take it up.

1905. But I presume that for the amount of time given they sometimes get less marks for Latin than for French and German?—Yes.

1906. Then on that principle Latin ought to be marked more highly?—Yes, on that principle, but I do not think it makes much difference while you keep it in its present position in Class I.

1907. *The Chairman.* Dr. Percival, in his evidence, has suggested that the compulsory subjects should be mathematics, Latin, French, German, and natural science; do you agree with that list?—That would

practically add two to the obligatory subjects of the present scheme, and I think would make them too many.

1908. There are really nine subjects now if you take into account Class II. and Class III.?—Yes, but Class III. is left to the individual candidates who take it to get what marks they can in those subjects. Dr. Percival's scheme would impose a much greater strain on the candidates than the present scheme.

1909. *Mr. Roby.* With reference to Class I. being obligatory, does it not come to this, that there is no compulsion in any other sense than that you cannot take alternative subjects?—Quite so; if a boy does not take up Latin, then he can take up only four subjects.

1910. There is no obligatory minimum in the separate subjects, nor in the aggregate?—No, not at present, but there will be an aggregate minimum required in the next examination. I think if Dr. Percival's plan were adopted there would have to be an obligatory minimum in each subject.

1911. *The Chairman.* You think the present scheme is a better one than the one suggested by Dr. Percival because you think your subjects are a better test of education than his?—Yes. If you compel a candidate to get an obligatory minimum in so many subjects, you spread his study over a very large surface, and he would not be so well able to master those subjects in which he can do best as he can at present.

1912. *Mr. Roby.* Some witnesses have said that some of the papers, especially in mathematics and classics, are not long enough. Are they generally three-hour papers?—Yes.

1913. Would there be any practical difficulty in giving another paper in mathematics?—No, especially now that there are to be local centres. There would have been an objection in the old days, when the examinations were all in London, because it would then have made them longer.

1914. Does one examiner now do the whole of the Greek and another examiner the whole of the Latin?—No, one takes the whole of the verse and another the whole of the prose. There are separate examiners in Greek and Latin.

1915. *General Sir W. O. Lennox.* Are the answers to the same questions looked over by two examiners?—No.

1916. *Mr. Roby.* Do you yourself consider it desirable to increase the number and length of the papers?—No, I think not. When that has been suggested I think the proposers have had in their minds the fact that when you cover a larger surface you give a boy more chance of finding something he can answer; on the other hand, I think if a boy is thoroughly well prepared in his subjects he ought to be able to answer the questions as now set to him. I do not think such an alteration would make any difference to the good man, though it might be an advantage to the inferior man.

1917. It has been suggested that the mathematics in Class I. are not high enough, and by some it was thought that in Class II. they are not high enough; some have urged that the calculus ought to come in?—We took the present scheme very much upon the recommendation of the Woolwich authorities.

1918. *General Sir W. O. Lennox.* Would there be any objection to the introduction of the calculus?—I do not know; I should imagine it could be taught properly in the schools, but I am not familiar with the subject myself.

1919. *Mr. Roby.* Dr. Percival has sent me a letter just lately, and in it he says: "I have sometimes thought that, instead of an essay to test English composition, a much better test would be a carefully-set English paper consisting (say) of (1) some general question the answer to which would be of the nature of a short essay, (2) one or two historical questions of a general kind, (3) ditto geography, (4) ditto history, (5) ditto science. Not more than a certain number of questions to be answered." Do you think that would be a good thing?—I think a paper of that kind would probably lead to cram.

1920. Are you strongly in favour of the position at present assigned to English history, and physical geography, and geology, 2,000 to each; do you find them, on the whole, satisfactory subjects?—I do not think English history is a very good subject for examination, it lends itself to cram; with regard to the other two subjects they seem to be well taught, and a certain number of boys do very well in them.

1921. Class III., geography, is that worth much?—We have not had any experience of that yet, formerly it was in the preliminary, and it was not worth much there; it was entirely a test of memory.

1922. How do you avoid cramming in regard to the English composition paper?—We set only subjects which are suitable to boys; we vary the subjects as much as possible, but I am bound to say that, in this particular examination, it is not a good test subject as far as separating candidates goes; the boys run very close together, and we seldom get a boy to write a good essay. In fact, with regard to English composition for the purposes of discrimination, the statistics of the examinations show the lowest figure reached by any subject in the list.

1923. *Lord F. Hervey.* Is it not the fact that, as a test subject, higher mathematics has three or four times the discriminating value of English composition?—Yes, certainly.

1924. *Mr. Roby.* Is there anything you would suggest in the place of English history?—I think I would let it stand as at present; it is a bad examination subject, but it is fairly well taught in the schools. A great many boys take an interest in it, and it would be a pity to turn away a boy of rather inferior calibre from taking a subject of that kind.

1925. Do you object strongly to putting physics or chemistry into the list of subjects that all must take up for Woolwich?—I strongly object to extending the range of compulsory subjects unless it is absolutely necessary for the purposes of Woolwich, and as to that I have at present no information.

1926. *General Sir W. O. Lennox.* But if found necessary, you would have no objection?—I should do so; but such a change would tend to specialise the examination.

1927. *Lord F. Hervey.* With regard to English composition, if marks were given for the subject matter of the papers, the candidates who had taken up particular subjects would get a distinct pull over the others who had not done so, would they not?—Yes.

1928. *Mr. Roby.* I was rather thinking of getting rid of history and geography as separate subjects, and putting them into the English composition papers?—I think it would be a pity to turn history out.

1929. *Mr. Whitmore.* English history is not such a bad discriminating subject; it is very much superior to English composition, is it not?—Yes. With regard to the discriminating value of the different subjects, the marks given in the last five Sandhurst examinations—June, 1891 to June, 1893, inclusive—show these results:—*

Class I.

Mathematics.—(The maximum is 2,500 marks.)

The average mark of all the candidates for the five examinations has been 1,080, or 43·2 per cent. of the maximum. The average mark of the successful candidates has been 1,560, or 62·4 per cent. of the maximum, of the unsuccessful candidates 950 or 38 per cent. of the maximum. The difference between

* *See* Appendices Nos. XXX and XXXI.

the average successful and average unsuccessful candidate's marks is therefore 24·4 per cent. of the maximum. The total number of candidates examined in mathematics was 2,913, and of the successful 603, or about 20 per cent. of the whole number. As all the candidates are obliged to take the Class I. subjects, this proportion of the successful to the unsuccessful, viz., 20 per cent., applies to all the Class I. subjects, *i.e.*, (*a*) mathematics, (*b*) Latin, (*c*) modern language (French or German).

LATIN.—(The maximum is 2,000 marks.)

The average mark of all the candidates examined at the five examinations is 764 or 38·2 per cent. of the maximum, which is both absolutely and relatively lower than the average mark for mathematics. The average mark of the successful candidates is 1,136 or 56·8 per cent. of the maximum; the average mark of the unsuccessful candidates is 662 or 33·1 per cent. of the maximum; the difference between the two is 23·7 per cent. of the maximum which approaches very closely to the corresponding figure for mathematics.

FRENCH AND GERMAN.—(The maximum for each is 2,000 marks.)

Most of the candidates take French under Class I., the number taking French being about 10 times as great as of those taking German. The average mark of all the candidates examined in French under Class I. at the five examinations is 902 or 45·1 per cent. of the maximum, a higher amount relatively to the maximum than for either mathematics or Latin. The average mark in French of the successful candidates is 1,124 or 56·2 per cent. of the maximum; of the unsuccessful 844 or 42·2 per cent. of the maximum, the difference between the average mark in French of the successful and unsuccessful candidates being 14 per cent. of the maximum, much less than in the case of mathematics and Latin. The number of candidates taking German under Class I. is comparatively so small that it is hardly worth while considering the figures in detail. They correspond closely with those in French as regards the last point, *i.e.*, the difference between the average mark of the successful and of the unsuccessful candidates. Of the Class I. subjects then the average mark of all the candidates is highest in French, next in mathematics, and lowest in Latin, but the difference between the average mark of the successful and unsuccessful is highest in mathematics and Latin, which are practically equal in this respect, and very much lower in French. It thus appears that marks are more easily gained in French, but that the weaker candidates approach nearer in marks to the abler candidates, and thus there is less distinction made between the two by the French marks which, therefore, contribute less to the final result than either mathematics or Latin. In other words, French is a less discriminating subject than the other two. (This is borne out by the curves for the three subjects shown in the graphic "Analyses of Marks." *See* Appendix No. XXXI.)

CLASS II.

OPTIONAL SUBJECTS (any two may be taken up).

HIGHER MATHEMATICS.—(The maximum is 2,000 marks.)

The average mark in higher mathematics of all the candidates who took up the subject at the five examinations is 530, or 26·5 per cent. of the maximum, which is very low compared with the figures of the Class I. subjects (just quoted) and also with the figures for the other Class II. subjects, being in fact the lowest proportion of the maximum in the whole list of subjects. The average mark of the successful candidates is 820, or 41 per cent. of the maximum, and of the unsuccessful 366, or 18·3 per cent. of the maximum, which again are lower percentages than for any other subject of examination. The difference between the averages of the successful and unsuccessful candidates respectively is 22·7 per cent. of the maximum which, in spite of the general lowness of the marks, is a large difference, nearly as great as in the case of Latin and mathematics, Class I., and shows that higher mathematics is a good discriminating subject. The total number of candidates taking higher mathematics is small, namely, 327, but of these a high proportion were successful, namely, 119, or 36·4 per cent., which is a higher proportion than for any other subject of the examination. Of the candidates as a whole only 20·7 were successful, so that those taking higher mathematics appear to have been abler than the average, and to have succeeded, not in consequence of having selected higher mathematics, but in consequence of possessing general ability, and in spite of the low marks given to the subject. That, I think, points to some alteration in the scheme being desirable in regard to higher mathematics; I do not think we treat the subject with sufficient liberality.

1930. *Mr. Whitmore.* Do you mean that the men of the highest ability are not sufficiently rewarded?—I do.

1931. *Mr. Roby.* Are the papers in the higher mathematics for Sandhurst the same as those for Woolwich?—Not in Class I., but they are in Class II.

1932. What kind of remedy would you adopt?—I think it would be possible to break up the subject for the mathematical specialists. You might add another division of the subject, giving it 2,000 marks. Possibly some division of this kind—

(*a.*) Higher questions in algebra, Euclid, trigonometry—two papers.

(*b.*) Geometrical conics, statics and dynamics—two papers.

FRENCH (under Class II., as an optional subject).

This is taken by a very small number of candidates who take German as their obligatory modern language under Class I., and there is not much importance attaching to the statistics of marks gained. They correspond very closely with the figures for French under Class I. 61 of the 241 candidates who select French as an optional subject, *i.e.*, 25 per cent., are successful, which is above the average. This is probably explained by the fact that they are all of them candidates who have selected German under Class I., and are, therefore, somewhat exceptional candidates, and above the average in ability, as German is perhaps a more difficult language than French.

GERMAN (under Class II., as an optional subject).—(The maximum is 2,000 marks.)

The average mark in German of all the candidates who took it up as an optional subject in the five examinations, is 766, or 38·3 per cent. of the maximum which is a lower figure than for French under Class I. (as might be expected). The average mark of the successful candidates is 1,086, or 54·3 per cent. of the maximum, and of the unsuccessful 680, or 34·0 per cent. of the maximum, figures which agree nearly with the corresponding figures for Latin. The difference between the average mark of the successful and of the unsuccessful, respectively, is 20·3 per cent. of the maximum, which is fairly high, and indicates that German is a better discriminator than French. The number of candidates taking this subject under Class II., is 1,674, of whom 345, or 20·6 per cent., were successful. This is neither appreciably higher nor lower than the average, 20·7 per cent. of the total number of candidates being successful.

GREEK.—(The maximum is 2,000 marks.)

The average mark in Greek of all the candidates at the five examinations, who took this subject, is 664, or 33·2 per cent. of the maximum. The average mark of the successful candidates is 1,000, or 50 per cent. of the maximum, and of the unsuccessful 512, or 25·6 per cent. of the maximum. These figures are about 7 or 8 per cent. lower than for Latin. The difference between the average marks of the successful and unsuccessful, respectively, is 24·4 per cent. of the maximum, which is exactly the same as for mathematics, and very nearly the same as for Latin in Class I., and indicates that Greek is a good discriminating subject. The number of candidates taking Greek is altogether 447, of whom 139, or 31·1 per cent., were successful. This is a high proportion of success, and ranks second only to that quoted already for higher mathematics. Greek labours under somewhat the same disabilities as higher mathematics, though not in an equal degree, *i.e.*, it appears to be taken up by candidates of more than average ability, who appear to be rewarded insufficiently in marks as compared with other optional subjects. (*See* Appendix XXXI.)

ENGLISH HISTORY.—(The maximum is 2,000 marks.)

The average mark of all the candidates who selected this subject at the five examinations is 644, or 32·2 per cent. of the maximum (almost the same as for Greek). The average mark of the successful candidates is 902, or 45·1 per cent. of the maximum, that of the unsuccessful 582, or 29·1 per cent. of the maximum. The difference between the average mark of the successful and that of the unsuccessful candidates is 16 per cent. of the maximum, which puts the subject on a comparatively low footing as regards its discriminating effect. Of the optional subjects English history is taken up by the largest number of candidates, namely, 1,844, or nearly two-thirds of the whole. Of those who take it, 335 were successful, or 18·2 per cent., which is below the average proportion of success, and indicates that the subject is taken up by candidates who have, on the whole, rather less than the average of general ability. (The shape of the curve for English history in the graphic "Analyses of Marks," *see* Appendix No. XXXI., exhibits the tendency of the marks to be limited in range with not much dispersion.)

CHEMISTRY.—(The maximum is 2,000 marks.)

The average mark of all the candidates who took up chemistry at the five examinations is 554, or 27·7 per cent. which is a low average, though not quite so low as for higher mathematics. The average mark of the successful candidates is 890, or 44·5 per cent. of the maximum (nearly equal to that for English history), while that of the unsuccessful candidates is 464, or 23·2 per cent. of the maximum. The difference between the average marks of the successful candidates and those of the unsuccessful is 21·3 per cent. of the maximum, which is a fairly high figure, and indicates that chemistry is above the average as a discriminating subject. The number of candidates who selected this subject was 588, or about one-fifth of the total number of candidates at the five examinations. Of these 118 were successful, a proportion of 20·1 per cent., which is about the average rate of success.

PHYSICS.—(The maximum is 2,000 marks.)

The numbers selecting this subject are too small to make it worth while to go into details. Only 130 candidates during the five half years have taken the subject. So far as the figures go they speak well for physics, which as a discriminating subject is on a par with higher mathematics, though the ratio of success is not great, being 17·7 per cent. of the candidates taking the subject, or 3 per cent. below the general average of success.

PHYSICAL GEOGRAPHY AND GEOLOGY.—(The maximum is 2,000 marks.)

The average mark of all the candidates selecting this subject at the five examinations is 708 or 35·4 per cent. of the maximum, which is about the mean amount for the optional subjects. The average mark of the successful candidates is 1,246, or 62·3 per cent. of the maximum, an unusually high figure. The average mark of the unsuccessful candidates is 616, or 30·8 per cent. of the maximum. The difference between the averages of the successful and unsuccessful, respectively, is 31·5 per cent. of the maximum, which is a higher figure than for any other subject in the examination. This is to be explained by the high average obtained by the successful candidates, who were but a small proportion of the whole number selecting this subject. In other words, the general run of the candidates selecting this subject were below the average in general ability, but there were a small number of exceptionally good candidates, probably with special aptitude for geology, who showed marked excellence in the subject. The total number selecting the subject was 460, of whom 66, or only 14·3 per cent., were successful. which is the lowest ratio of success amongst all the subjects of Class II.

CLASS III.

ENGLISH COMPOSITION.—(The maximum is 500 marks.)

The average mark of all the candidates at the five examinations (and practically every candidate takes this subject) is 241, or 48·2 per cent. of the maximum. The average mark of the successful candidates is 266, or 53·2 per cent. of the maximum, while that of the unsuccessful is 234, or 46·8 per cent. of the maximum. The difference between these two percentages is only 6·4, much the lowest figure reached by any subject in the examination. This indicates that (*a*) power of writing an English essay has very little relation to general ability, inasmuch as the unsuccessful candidates, as a whole, perform nearly as well as the successful: and (*b*) the subject is a difficult one to mark, and the examiners have not been able to make much distinction between the candidates. Both of these causes have probably operated to produce the result. That the second cause has done so will appear from a glance at the curve for English composition in the graphic "Analyses of Marks." (*See* Appendix XXXI.) The apex of the curve extends far to the right, and there is very little dispersion; most of the marks ranged between 30 and 60 per cent., a mark of about 40 per cent. being much the most frequent.

FREEHAND DRAWING.—(The maximum is 500 marks.)

The average mark of all the candidates at the five examinations is 213, or 42·6 per cent. of the maximum. The average mark of the successful candidates is 256, or 51·2 per cent. of the maximum, and of the unsuccessful 210, or 40·2 per cent. of the maximum. The difference between these percentages is 11·0, which shows that freehand drawing is a less discriminating subject than those in Class I. or Class II., but more so than English composition in Class III. This is borne out by the graphic "Analyses of Marks" (*See* Appendix No. XXXI.), in which the curve for freehand drawing shows much more dispersion than that for English composition.

GEOMETRICAL DRAWING.—(The maximum is 1,000 marks.)

The average mark of all the candidates at the five examinations is 509, or 50·9 per cent. of the maximum

The average mark of the successful candidates is 643, or 64·3 per cent. of the maximum; that of the unsuccessful 473, or 47·3 per cent. of the maximum. The difference between those percentages is 17·0, which shows that the subject possesses a fairly high discriminating power, though not quite so high as the mean amount for the Class I. and Class II. subjects.

1933. Do you think freehand drawing is worth retaining?—I should not like to say off-hand; it is a utility subject, and it would not be taken up unless marks were given for it, but as a test of general ability, I do not think it is worth much.

1934. Do you think much attention is given to English composition in schools?—As far as my knowledge goes, I think it gets about an hour or two a week, but now that the subject is marked higher, and we have said, that marks will be taken off for bad spelling and bad handwriting, there is no doubt a great deal more attention will be given to it in the future. It is in Class I. now, and in that class an aggregate minimum is required.

1935. Is that aggregate minimum likely to be effective; will it not rather be determined by the competition?—I think so. The aggregate minimum furnishes a guarantee, which, however, under the circumstances is hardly required.

1936. Is there any ground for supposing that a person who would otherwise be a successful candidate will now be kept out?—I think not.

1937. *Lord F. Hervey.* If a plucking minimum were adopted, as Dr. Percival suggests, in four out of five separate subjects, would not the effect be either *nil* or mischievous?—I think so, certainly. For instance, it would not help Woolwich in any way if you put in electricity, with a plucking minimum of 25 per cent.; such an amount of knowledge as that would be almost worthless to a candidate for Woolwich. On the other hand, a very good candidate might be plucked through weakness in a particular subject.

1938. *Mr. Roby.* Do you think the results for Woolwich would differ very much from those you have already given us for Sandhurst?—I think not, except perhaps in the case of mathematics and science, for which special candidates go to Woolwich.

1939. Would you suggest anything with regard to the English composition paper?—I think we ought to have a second paper as a test of the power of reasoning and logical arrangement.

1940. *Mr. Whitmore.* Would you suggest something in the form of an abstract?—Yes, an abstract, or an analysis, or a précis, but not too technical. I think we could devise some test which would show how far candidates could analyse and combine their their ideas. At present, a certain selection of subjects is given, a candidate chooses one of them, and writes down impromptu what is in his mind, which is very often not much.

1941. *Mr. Roby.* With reference to the Queen's Cadets, and that class of entrants, have they to get a certain number of marks in the competition?—Yes, 3,200 marks, the same as the Militia.

1942. Do they have different examination papers from these?—No, they come in on the same papers.

1943. Is the standard attained by that class of candidates fairly satisfactory?—It is very low indeed.

1944. Is their's a purely qualifying examination?—Yes, all they have to do is to obtain a qualifying minimum.

1945. *Sir H. Roscoe.* Are there any returns showing separately the marks obtained by this particular class of candidate, or are they all included in the figures you have already given us?—They are included.

1946. Could the marks be shown separately?—Yes, they could be got out.

1947. *Mr. Whitmore.* How many get in at a time?—Three or four, I think.

1948. *The Chairman.* Would you like to see the qualifying number of marks for the Queen's Cadets higher than it is at present?—Yes.

1949. *General Sir W. O. Lennox.* To what figure would you go, would you say 5,000?—I think I would begin with 4,500 and then raise it afterwards to 5,000.

1950. *Mr. Roby.* Do you think the present class of candidates would have any difficulty in attaining that figure?—I think they would attain it, only they would have to work harder.

1951. Do I understand from you that this particular class enter the Army on account of the merit of their father's services, and that they are selected from those who would otherwise be quite unsuccessful?—Yes.

1952. *The Chairman.* If they are not capable of getting 4,500 marks they are not worth having, are they?—I think not.

1953. *General Sir W. O. Lennox.* The Queen's Cadets do not get into Sandhurst with a lower qualification than the Militia candidates get into the Army, do they?—No.

1954. *Mr. Whitmore.* Then would you also raise the standard for the Militia Officer?—Yes, the Militia examination is most unsatisfactory at present. It seems to me that it would be perfectly easy to do away with the Militia examination if you gave an option to the unsuccessful candidates highest on the Sandhurst list of joining the Militia; you need not then have a separate literary examination at all.

1955. *The Chairman.* If we propose to put the qualification for Sandhurst up to 5,000, could we not do that also for the Militia?—I see no reason why it should not be done.

1956. *Mr. Roby.* Even if it were up to 5,000 there would be an abundance of choice according to these lists?—Yes, certainly; I think the results of the separate examination for the Militia go to show that reform is urgently required; their standard at present is very poor. With reference to the men coming up from the Universities for commissions, the following shows the average total marks and highest total marks of University candidates, compared with those of the ordinary candidates for each of the five examinations up to June, 1893:—

Date of Examination.	University Candidates.			Ordinary Candidates.		
	Total No. of Candidates.	Average total Mark.	Highest total Mark.	Total No. of Candidates.	Average total Mark.	Highest total Mark.
June, 1891	18	5,441	8,423	465	4,932	8,632
November, 1891	18	5,571	7,797	590	4,968	10,371
June, 1892	16	6,506	8,344	693	5,296	8,839
November, 1892	18	6,570	8,497	664	5,111	9,424
June, 1893	19	5,829	8,694	503	4,892	8,575

By those figures you will see that the average performance of the University candidates is in every case higher than that of the ordinary candidates, the difference amounting, on the average, to nearly 1,000 marks. The highest mark, with one exception, is lower than the highest mark of the ordinary candidates. But this might be expected, as in the latter case there is an enormously greater number of candidates, and the chances are, therefore, greatly in favour of an exceptional candidate being found amongst them at each examination.

1957. *The Chairman.* With reference to the question of widening the range, it has been thought, perhaps, ten subjects might be stated all equally marked, and the candidates allowed to take any five of them; was there not some plan of that sort followed some time ago?—Yes, when the examinations first started there was a wide range of subjects, but with different marks attached to each.

1958. But to allow for a free choice the subjects must be equally marked, must they not?—If you marked them all equally the easier subjects would be taken and the harder ones left out.

1959. *Mr. Roby.* Suppose somewhat similar subjects were bracketed together, say, for instance, English history and geography?—That might be done, but I think it would be very difficult.

1960. *The Chairman.* If subjects were bracketed together, might it not lead to smatterings?—Yes, I think so; but if there were a perfectly open choice, we should, I think, make some deduction. If you greatly extend the range of subjects in Class II. you would get subjects not taught in all schools, and, further, you would have to put in a number of subjects which are not of equal educational value.

1961. I was thinking of abolishing Class I. altogether, and giving a perfectly open list?—I think the effect of entirely abolishing Class I. would be that the candidates would choose all the easier subjects and omit the good educational ones; the private tutors would soon find out the subjects in which marks could most easily be scored, and that I think would tend to specialize the examination, although you might seem to widen the range.

1962. *Mr. Roby.* It has been suggested that other languages, such as Russian and Arabic for instance, might be put into these examinations, have you any idea whether candidates would offer such languages as those?—I do not think boys would take them up.

1963. Have you ever come across boys who had such languages and wished to put them in?—I have not heard of any but of course a boy brought up abroad might like to put in the language he was familiar with.

1964. *The Chairman.* At present there are two examinations each year, do you think it would be any advantage to the public schools if there were three?—No, I do not.

1965. Have you received any protests upon that point?—No.

1966. With reference to the times of these examinations, complaint has been made that the time between the close of the examinations and the end of the terms is wasted by the boys rather than otherwise; do you think there would be any great inconvenience in having the examinations nearer the end of the terms?—I think the only difficulty in regard to that arises with reference to the times at which Sandhurst and Woolwich have their vacations.

1967. Other things being equal would you just as soon have the examinations at the end of the terms?—Yes.

1968. *Mr. Roby.* Do you think you could bring out the results of the examinations substantially more quickly than now?—It would be impossible to do that with a thorough examination.

1969. Have you heard of the sons of some Indian Officers who wanted to present themselves with a knowledge of Indian languages, and complained because they had no opportunity of showing their knowledge?—I have not heard of them.

1970. *General Sir W. O. Lennox.* Some of the witnesses have urged that the names of the examiners should be put on the examination papers, is there any objection to that?—There is the greatest possible objection to that; if the names were published we should have the examiners pestered with communications from anxious parents and others. Besides that the examiners are not responsible for the examinations; the responsibility lies with the Civil Service Commissioners.

1971. *Sir H. Roscoe.* Are you satisfied that the control exercised by the Commissioners over the marking is sufficient to secure that the papers are practically of the same value in relation to their marks?—Yes, I think so; we have various ways of meeting any inequalities that may arise.

1972. *Mr. Whitmore.* Do you think there is any ground for complaint on the score of inequality?—I think not. When the marks run very close together our own permanent staff of examiners go very carefully into the matter and bring all doubtful matters to the notice of the Commissioners

1973. *Mr. Roby.* How many examiners have you for that purpose?—Three.

1974. *General Sir W. O. Lennox.* It has been suggested that there should be more examiners for the same subjects, and that a comparison of the results should be made before they are published?—We have had 30 years' experience in these matters, and we have found that if we select an able examiner he does not differ very much from his colleagues in all subjects where positive results can be arrived at. In the papers for English composition, we always have two examiners, but that is the only subject for which in the Home Civil Service examinations we have two examiners.

1975. *Lord F. Hervey.* Have you any remarks to offer with regard to what Sir Robert Biddulph has stated as the reason why Latin was made obligatory?—Sir Robert Biddulph was, I think, confusing two things in his memory. The way in which the question arose was this: I had observed that the scheme of examination in force before the present scheme was operating very prejudicially to candidates coming from the public schools. I went into the matter, and addressed a memorandum to the War Office upon the subject, making certain recommendations which I thought would remedy the inequalities. In that memorandum no doubt I recommended that Latin should be included in Class I. and made an obligatory subject, because it was universally taught in the schools; but not that it should be made obligatory because it was a good subject for teaching English composition. At the same time I had before me another matter which was very much exercising our minds, and that was the English essay. We had included that in the preliminary at the request of the War Office, but we did not think it was answering the purpose for which it was put in; I therefore asked Sir Robert whether it could not be removed, and, in support of the suggestion, I sent him a number of papers showing the quality of the results we were getting. Sir Robert appears to have confused the two things in his memory, and to have thought that I recommended that Latin should be put in because it was a good subject for teaching English composition.

1976. Connected with the introduction of geography into Class III., Mr. Durnford, one of the witnesses, said he was in great doubt as to what to do with geography in the Army class at Eton. Do you think there should be any doubt upon the point?—No, I think not, because we have issued, with the concurrence of the War Office, a sheet showing what candidates will be required to take up in June, and by that sheet they can see clearly that geography is now included in Class III.

1977. The same witness also referred to the literary and historical questions appended to the French and German papers, and he appeared to desire that those questions should be restricted to a limited period?—The whole subject was gone into with very great care. We consulted the head-masters upon it. They objected to having a special paper, but agreed that there might be a few general questions in connection with the unseen passages set for translation.

1978. Those questions are really thrown in rather as discriminating agents to assist in dividing the candidates, are they not?—Yes, that is so, and in order to encourage candidates who have some general reading; but there is no obligation upon a candidate to get up literature.

1979. Another witness, Mr. Shenstone, has referred to an article in which Mr. Oscar Browning said that the papers set by the Civil Service Commission were of an exceedingly stereotyped character, and were easily got up beforehand?—The witness appears to have founded that statement upon an article, in an educational journal, written by Mr. Browning, which

was full of inaccuracies. In the following number of the same journal, a paper was printed pointing out those inaccuracies, and that second paper the witness appears to have missed.

1980. With reference to the principle upon which different subjects are put into different classes, is not this the idea underlying the prevailing system, that into the first, or obligatory class, there shall be put a limited number of such subjects as are taught in all the higher schools of the country, at some stage or other, to all the pupils in those schools?—That is the principle which underlies Class I.

1981. And was it not also recognized that besides those subjects there were others which were taught more or less in all schools, and in regard to them a choice should be given to the candidate?—Yes.

1982. The object being while securing a sufficient amount of what may be called the "catholic" subjects, free play may be given to the aptitudes and tastes of the various candidates?—Yes.

1983. And so far as you know there has been no complaint that the present scheme fails to provide for the objects which were in view?—Since the present scheme has been in force we have received absolutely no complaints with regard to its working, whereas under the old scheme we were constantly receiving these complaints.

1984. Besides the subjects formed into Class II. there was also a small group formed into Class III., which was placed at the option of the candidate, but they were not considered of the first importance, they were looked upon rather as utility subjects?—That is so.

1985. And the whole curriculum, apart from the exigencies of the schools, was felt to be in obedience to the wishes of parents throughout the country?—Yes; it is to the interest of parents that the examination should coincide with the established system of education.

1986. *General Sir W. O. Lennox.* Did the Civil Service Commissioners recommend that the preliminary should be done away with?—Yes.

1987. For what reason?—It was not acting as a good instrument for weeding out the hopeless. Candidates got into the "further" who had absolutely no chance of succeeding; the "preliminary" therefore threw a great amount of useless labour upon the Civil Service Commissioners and caused unnecessary expense to the parents.

1988. *Lord F. Hervey.* The preliminary was suited for boys of about 14 years of age?—The standard was suitable for boys of about 15.

1989. And yet when the preliminary existed there were some loitering on at the schools and the crammers up to 18 or 19?—Yes.

1990. Therefore, so far as the schools were concerned, the preliminary did not always force the boys to work?—That was the case.

1991. A complaint has been made that without the preliminary it will be difficult to get boys to begin work early, do you attach much importance to that complaint?—No, that is a matter entirely for the schools to deal with.

1992. The basis of the present scheme was laid down by Sir Robert Biddulph in his confidential memorandum, and in his 4th Report upon the Education of Officers?—Yes.

1993. And by that scheme it was not desired to make the examinations a test of whether candidates possessed particular items of knowledge that might be useful to them as Officers, but it was desired to see whether they were generally well grounded for their years?—Yes.

[*The Witness withdrew*].

Mr. WALTER WREN, *examined.*

(*See* also Appendix XIX.)

1994. *The Chairman.* You are a private tutor, I believe?—Yes.

1995. For how long have you been engaged in that profession?—I have had an establishment of my own since 1862.

1996. Have you prepared a large number of young men for the various examinations?—Yes, I have prepared them for every competitive examination going, I think.

1997. Have you prepared a large number for the Army?—Yes.

1998. Do you agree in the main with the subjects that have recently been settled upon for the entrance examination into Sandhurst?—I think the list could be usefully amended.

1999. In what way?—I think they are wrong in every particular. Has your attention been called to my pamphlet, dated June, 1893, which I wrote at Mr. Campbell-Bannerman's request?

2000. *Lord F. Hervey.* Did not the substance of your pamphlet appear as a magazine article, before you sent it to Mr. Campbell-Bannerman?—No. I have published two articles, one upon Lord Wolseley's address to a society, in June, that appeared in the *Fortnightly Review;* and later on in the *United Service Magazine,* there was an article of mine which dealt with some charges made against crammers and Militia Officers, but in both those instances I limited myself to the subject I had to write upon.

2001. *The Chairman.* Would you like to have obligatory subjects in such examinations as we are now considering?—Certainly.

2002. Would you have a minimum mark in those subjects?—Yes.

2003. *Mr. Roby.* Is that what you mean by "obligatory" subjects?—I mean that there should always be those subjects, a knowledge of which is considered essential by the military authorities.

2004. And which consequently every candidate must take up and obtain a minimum in?—Certainly. I learn from the military reports that there are certain subjects which it is considered essential and necessary for an Officer to know, and in my pamphlet I deal with the question from that stand-point. I have no opinions of my own upon the matter.

2005. Your scheme is the logical result of the opinions expressed by the higher military authorities?—It is based entirely upon those opinions, and illustrated by quotations from Lord Salisbury, Sir John Lubbock, and His Royal Highness the Duke of Cambridge. I have studied these examinations since the date of the first open competition, which was held in 1856, and my statements are founded upon the reports of the old Council of Military Education, and upon the reports of the Director-General of Military Education and others.

2006. *The Chairman.* How do you think the subjects might be amended?—The knowledge of arithmetic required now is no knowledge at all, and the

algebra is very elementary, though the Euclid is enough to begin with. "Plane trigonometry up to and including solution of triangles, and mensuration," that is enough for a compulsory or qualifying minimum, but totally insufficient in itself to what an Officer ought to know.

2007. *Lord F. Hervey.* Does the Duke of Cambridge support that proposition?—So far as I know. "Latin" is a very important subject in education, but I do not think it is necessary here, and the time left for it up to the age at which boys are allowed to compete is not enough, if they are to learn all those things which are stated by the military authorities to be necessary, in addition to the ordinary subjects of an English education. "French or German," I think both are necessary, and only the other day there was a leader in the *Times*, in which a knowledge of German was insisted upon. "English composition," I think that is an important subject, seeing that Officers have to write reports. "Drawing," I think both geometrical and freehand drawing are very important to an Officer; in fact, I consider a knowledge of both to be essential to him, because what is often wanted from an Officer is that he should be able to make a map of any place where he may happen to be.

2008. *The Chairman.* Is not that done by means of instruments so as to ensure accuracy?—I think it is done in both ways. I am now giving evidence outside my own knowledge, but I am supposing those two subjects to form an essential part of an Officer's education on the assumption that he may be called upon at five minutes' notice to make a typographical sketch of his position. I learned from the reports that there are some Officers so ignorant of these subjects, that not only could they not make a sketch map, but they did not know how to use one when they got it.

2009. *Mr. Roby.* May we take it that your suggestion is to make arithmetic and algebra more difficult; to omit Latin; to make French, German, and freehand and geometrical drawing compulsory?—I agree to that from what I understand to be the wishes of the military authorities; but if I am called upon to express my own opinion as to the course of preparation a candidate should go through in order to fit him to become an Officer, then I say there are some things which are necessary and some things which are not necessary. For instance, I think geography is of extreme importance, and it was to me a source of great surprise when I found geography relegated to Class III., with only, so to speak, half-marks allotted to it.

2010. *Sir H. Roscoe.* Could geography, in your opinion, be made an examination subject, equal, for instance, in importance to mathematics and Latin. If we were to put a high value upon it, might it not be found to be a path of least resistance, and so taken up because marks could more easily be got for it than for the other subjects?—I do not believe a word of it. I do not think it is easier to get up than the others; but suppose it does lend itself to examination purposes, it is the business of the examiners to prevent that. I believe geography could be made a subject of the greatest possible use and importance, both from an educational and a training point of view.

2011. *Mr. Roby.* Do you know of any papers which would suggest the kind of paper you would like to see set on this subject?—Many years ago the Civil Service Commissioners had some such papers, but none have been set lately.

2012. Do you know whether there are any such papers in Germany?—No. My opinion of the importance of geography is based upon what I have learned of the campaigns of Napoleon, and from Lord Wolseley and others. I used to make the history of military campaigns a subject of the first importance when I was teaching military pupils; I used always to lecture my boys upon the campaigns of Marlborough, Frederick the Great, and Napoleon, and Wellington, and I anticipated in those days what I find Lord Wolseley and other authorities say should be done now.

2013. *Sir H. Roscoe.* That was scarcely geography, was it?—The two things went together, because I insisted upon the pupils knowing the geography of the countries included in the campaigns.

2014. But would that not be a subject to be dealt with in Sandhurst, rather than in an entrance examination?—Perhaps so.

2015. We have to deal simply with the entrance examinations?—I think a certain knowledge of geography is essential to candidates who are to be technically instructed in these subjects after arrival at the College. "English history; there will be set one general paper, one paper limited to a fixed period, of which notice will be given." That is valueless; they ask for the general knowledge in English history by setting such a question as "Write a character of Alfred the Great." That is no good to anybody.

2016. *The Chairman.* What range of English history would you suggest?—I would take what the leading military authorities consider necessary. I would say, the history an English gentleman ought to know, the history of all the great wars, as described in Sir E. Cust's Annals of the Wars, and the matters connected with them, but I would not go into small details. There is no doubt in my own mind that one of the most important campaigns in English History was the campaign of Tewkesbury. I wrote a review in the *Quarterly Review* on Warwick, the king-maker, and if you do not know all about Tewkesbury, how can you prove such a statement as that?

2017. Would you make this military history part of the compulsory education for getting into Sandhurst?—Yes, I am led to believe it would be a good thing by those whose judgment I respect, and personally I think it should be known if it is essential to an Officer after entering the College.

2018. Would you make it obligatory in substitution of one of the subjects now in Class I.?—No, because I think the others are much more important; but I would make a certain amount of English compulsory, and it should be exactly that amount which it is essential that a cadet should know in order to qualify him to receive the further instruction of the colleges.

2019. *Lord F. Hervey.* Is the history to be general history or specifically military history?—The latter.

2020. Why would you demand that they should learn specifically military history, if they are to take up military history afterwards?—The authorities would know where to divide the subject.

2021. *Sir H. Roscoe.* Then it would have to be taught in all the schools, would it not; would Eton and Harrow know what to do?—Yes, just as well as we do.

2022. *Mr. Roby.* With regard to what you say about history, I see in the June, 1893, examination for Sandhurst, there are these special questions put: "Describe briefly Marlborough's campaigns of 1706 and 1708, and their results. Describe the battles of Dettingen and Fontenoy. Sketch the history of the English in India from the death of Aurungzebe, 1707, to the year 1760." There is a good deal about military history there, is there not?—Yes, that is what I want.

2023. Do I understand you want that made compulsory?—Yes.

2024. Would you add also to the compulsory subjects some physical science?—Yes.

2025. What physical science? — Whatever the authorities of the colleges considered to be necessary, chemistry, for instance. An Officer must have a certain knowlege of that for gunnery.

2026. *Lord F. Hervey.* But you are speaking now of Sandhurst?—I speak of Sandhurst with less confidence, I know more about Woolwich; but, *mutatis mutandis*, I refer also to Sandhurst. Sandhurst examinations are easier than Woolwich, and the result is a lot of young fellows prefer going in for Sandhurst rather than take up the far harder examination for Woolwich. The intellectual power of a candidate

below the age of 17 is necessarily limited, and he cannot take up all the subjects that are in the list now. I observe that the military authorities carefully draw a distinction between the two sets of subjects; they say, practically, "some are necessary, the others are useful, and we should like to get as many of them as we can."

2027. *Sir H. Roscoe.* Would you prefer chemistry to physics?—No. I think electricity is much more important to an Officer in a Line regiment than a knowledge of chemistry, though the latter is very necessary for an Officer in the Artillery.

2028. We have been told that in Woolwich a great difficulty arises from the fact that a number of students enter without any knowledge of elementary chemistry, whilst others come in with a very considerable knowledge of it as learned at the schools. Owing to some not knowing anything of the subject, it is necessary to go over the subject in a very elementary manner; and that entails a great waste of time on the part of some of the cadets, which might be spent in a more useful manner, in the study of electricity, for instance. Would it not, therefore, in your opinion, be advisable to demand some modicum of chemistry from all candidates, so as to prevent the present waste of time by some?—That touches a very important point; the thing should either be obligatory or not. I would not have any inequality of knowledge. If chemistry is necessary in the Academy, then a certain compulsory minimum should be insisted upon, in order to prepare for the subsequent training. That is one of the things that the military authorities must decide.

2029. *Mr. Roby.* Having made certain subjects obligatory, are there some others you would add in order to allow the candidate to have a choice?—No, for the simple reason that that would be piling too many burdens upon a boy's back. With the highest order of intellect it is, however, a good thing to give them a chance in a voluntary subject; but, if you did, I would say put on a limit, and tell a candidate that if he took any one he must be prepared to undergo a very stiff examination.

2030. What voluntary subjects would you put in that category?—Those for Woolwich which are pronounced the more important, but none at all for Sandhurst.

2031. Which are those for Woolwich?—An additional branch of natural science, specially higher mathematics, and if German and French are not both made compulsory, then certainly an additional modern language.

2032. You do not give any place to Latin or Greek?—No, they are not wanted amongst those subjects regarded by the military authorities as essential. I feel very strongly upon this point, because boys are now told to learn subjects which they know they will drop directly they get into the Academy, and that system I think is demoralizing.

2033. Would not many of those boys come into the examination after having been a considerable time in a public school?—Yes.

2034. And possibly they have spent a good deal of time upon Latin and Greek?—I have nothing to say against that.

2035. Supposing they have done well in those subjects, would you not allow them to count?—Yes, and I have said so, so long as they take up those other subjects which the military authorities require of them.

2036. Your idea clearly is not that this examination should be a means of selecting the boys who have the greatest capacity as tested by the work done, but that the examination should be adapted to their future work?—My own opinion is exactly the reverse of that; if I had my way the examination should be such that the best boy should have a chance of coming out first. My own opinion is that the examination should be in those subjects which are of the highest educational value, so as to enable the candidates most easily to be placed in order of merit.

2037. *Lord F. Hervey.* Then you differ from Lord Salisbury and Lord Wolseley on a fundamental point?—Yes, to a certain extent.

2038. *Mr. Roby.* Would that selection coincide with what you have given us here?—I think not; my own opinion is that there are certain subjects of great educational value, which are also necessary. I strongly object to the statement, which has so frequently been made, that classics are the A 1 of value in education. I deny that *in toto*. People say that the best training for a boy's mind is to be well grounded in Latin and Greek, but I say the evidence of the Cambridge University Calendar distinctly proves that such is not the case. I say that mathematics offers a better mental training, and it has a greater educational value than classics, and I can show you that most of the Cambridge men of distinguished eminence of the present day did not do any classics.

2039. *The Chairman.* You consider mathematics absolutely essential, but would you make all your other subjects compulsory for Woolwich?—No, I think not, I want to divide the subjects into two, educational subjects, and technical subjects.

2040. Would you say French and German are advisable for the entrance examination?—Yes, I think they should be put forward, though I would rather have one at a time.

2041. *Mr. Roby.* Would you say either?—Yes, as far as training goes, but then an element of compulsion comes in, because if out of 40 candidates 20 have learned French, and 20 learned German, then you have to set one batch to learn the other language in the Academy.

2042. *The Chairman.* Would you have geography as a compulsory admission subject?—Yes, because they have not time for it in the Academy.

2043. And English?—English composition enough to show capacity to write a report.

2044. Would you make electricity a compulsory subject in the entrance examination?—Yes, everybody ought to know that now.

2045. Then, with reference to Class II., I understand you would have certain subjects for Woolwich in which they would have to get a good minimum of marks?—Yes, for the Woolwich subjects a certain amount of knowledge must be insisted upon.

2046. Higher mathematics?—No, I want no limitation—no higher or lower, but "mathematics" and nothing else, and I would allow a boy to take up mathematics for either Woolwich or Sandhurst. But boys differ very much in mathematical power, and I would not encourage a boy to go in for any higher or fresh subject until he had given proof of knowledge of all lower ones.

2047. *Mr. Roby.* Would you be content with half marks in that subject?—I think a candidate should not have any marks at all except he gets more than half marks, and then I would give him all.

2048. If he gets 50 marks out of 100, give him none, and if he gets 51 give him 51?—Yes.

2049. Would it meet your view to give everything above a certain minimum?—No, I think not; but the difficulty is to find any other course. Whatever method you adopt of making a deduction, or making a compulsory minimum, you will be brought into contact with some considerable difficulty.

2050. *The Chairman.* May we take it from you that you think six subjects not too many for a boy to take up?—That is so. For Woolwich I would examine for the best man, but for Sandhurst I think it should be different. I would not allow classics to be a voluntary subject for Sandhurst boys, because they are inferior as a rule; but I would allow Latin and Greek to be voluntary subjects for Woolwich. I have always set myself against mere cramming, and I have never allowed a boy to go on with a subject unless he had either a good ground-work to start upon, or a good natural capacity to master the subject. After the Crimean war a great outcry was raised, and it was said, "we will never send out such Officers

again." Upon that a lot of men set up as private tutors for the Army, but they were crammers of the worst possible kind.

2051. Is it not the fact that boys do come more from the public schools than they did?—As long as you make your examinations so elementary the schools will adapt themselves to them, but there would be considerable difficulty in their adapting themselves to a higher standard. We have always understood that the present list of subjects was drawn up by the head masters. When I left the man I was with, and set up for myself, I totally abolished cramming, and yet we and our staff are now put on the low level of those men who were not University men at all. In the report of the Board of Visitors the cadets are shown as having come from Eton, Harrow, and so on, or from crammers; but I am no more a crammer than the head master of Eton is. Here is a list of the staff employed at Eton, and here is a list of the staff employed in Powis Square, and if you put the two together you will see that the Eton staff cannot compare with ours.

2052. *Lord F. Hervey.* In your pamphlet, dated June, 1893, you say: "Allow only those marks to go towards the grand total which are above one-third, or one-half, of the total assigned to each subject. This entails the hardship that a candidate who gets 510 in a subject carrying 1,000 marks scores 510, while one who gets 490 scores nothing." Is that so; surely a candidate who gets 510 marks would score only 10 under those circumstances?—No, I want him to get 510.

2053. In the May, 1893, letter which you wrote to Mr. Campbell-Bannerman you absolutely confused the old preliminary with the old obligatory subjects?—You can put it that way if you please.

2054. You made a certain statement in that letter about the gross ignorance of the Woolwich candidates?—Yes.

2055. Do you still adhere to that statement? "220 out of 405 public school boys (all or nearly so) failed. The candidates were over 16. Consider the kind of teaching public school boys had, who after learning Latin for say eight years could not do an easy piece of Latin translation, even with a vocabulary of the harder words." Was not that rather severe, both upon the candidates and their teachers?—That statement was copied from a report (in doing which I made a mistake, because I copied the wrong schedule, and I have cancelled that pamphlet dated May, 1893), showing the numbers who were examined and the numbers who failed, issued by the Civil Service Commissioners.

2056. I should be very much surprised to find that the report of the Civil Service Commissioners was altogether inaccurate?—I think it is accurate.

2057. Then further on in the same letter you say "I say that making baby Latin, baby French, and baby mathematics compulsory, and excluding knowledge of Latin and French and mathematics worth having, is providing Her Imperial Majesty's military colleges with boys so ignorant and so uneducated as to be unfit for a proper course of technical instruction." Do you still apply those rather strong words to the competitive examination for Sandhurst and Woolwich, as you do in your pamphlet of June?—They were hardly too strong, and were confirmed by official military reports.

2058. Is it not the case that, with the single exception of mathematics, there is no difference between Sandhurst and Woolwich, they are absolutely identical examinations?—Yes.

2059. Then where does it come in that the Sandhurst examination is so much easier than Woolwich?—Because a much lower standard is accepted.

2060. The test is competitive, and the best boy wins?—If a boy got 500 marks for a subject in the Woolwich examination, he would get far higher marks in the same subject for Sandhurst.

2061. How would that be, the papers are looked over by one and the same examiner, who marks them on the same principle, as far as I know—is there any difference?—Only in the point I make, namely, that the successful candidate for Woolwich must know more.

2062. More what?—Of any subject he takes up.

2063. But only of mathematics?—Of everything.

2064. Do you mean by the stress of competition? because the marking is the same, and the subjects are the same?—I mean that primarily. The amount of knowledge required in the entrance examination, in the subjects they are afterwards examined in at the college, is not sufficient to enable them to cope with the higher technical instruction, which is, or I think should be, provided in the military colleges, and that is a point insisted upon in the military reports.

2065. In your pamphlet of June, you say, "The knowledge of mathematics possessed by a successful competitor for Woolwich should be equal at least to that of a successful competitor for an entrance scholarship at Trinity College, Cambridge"?—That is somewhat exaggerated.

2066. So much so as to point to an impossibility, is it not?—I do not think that.

2067. Then according to that, the 50th candidate at the half-yearly examination for Woolwich must be equal to getting a competitive mathematical scholarship at Trinity?—I never thought that interpretation would be put upon the statement.

2068. Nobody need apply to get into Woolwich who could not become a wrangler?—That is what I should like to see. I think more mathematics should be required for Woolwich, and perhaps in that statement I ought to have said "an ordinary Cambridge mathematical scholarship." I think that standard should be set up, however difficult it may be to reach it. Many of our pupils have won mathematical scholarships, and more could have done so.

2069. *The Chairman.* With reference to modern languages, would you give marks for the colloquial examination?—Yes.

2070. At present, only 200, out of a total of 2,000, is given for the colloquial, would you like to see that number increased?—I would make that an essential; I would give no marks unless a candidate could speak French to the extent thought advisable. The Duke of Cambridge has said that all Army cadets ought to speak French, and my own opinion agrees with that. I think a knowledge and capacity for speaking a foreign language is of far greater importance than any amount of right translation.

2071. *Mr. Roby.* How many marks would you be disposed to give to the colloquial?—Half, at least.

2072. How long a time would you give to the examination so as to justify such a large proportion of marks as one-half?—I would be disposed to give an examiner rather larger power in that respect.

2073. Would you allow half an hour for each candidate?—I think it should be at least an hour, and there should be two examiners.

2074. With 800 candidates?—Then there must be a preliminary.

2075. *The Chairman.* Would you mark all the subjects taken up the same?—No, those most useful should have most marks, and mathematics most of all.

2076. Would you give drawing 2,000 marks?—I do not think I am qualified to give an opinion upon that, I am speaking only from my knowledge of the various military reports.

2077. As you have had great experience of young men between the ages of 18 and 23, do you think there is anything in the suggestion of marking for physical development and athletics?—No, I think a rigid medical test is sufficient. If you said you were going to give marks for athletics, you would be putting a premium upon that; and I do not think it would be right. To say that a candidate should be excluded because he is not up to a given standard in riding would be unfair, besides which it would be putting a high premium upon the sons of wealthy people. I think, however, no Officer should be allowed

to enter the Army who cannot ride; but that examination should come at the end of the college course, and not at the entrance examination.

2078. *Mr. Roby.* Then I presume you would not be disposed to give marks for measurement round the chest?—No, but I would exclude a candidate of inferior physique. There is one point upon which I should lay the greatest possible amount of stress, and that is that we should be very tender to the boys of less intellectual power, so as to give them all possible chance of qualifying for the Line regiments; but for Woolwich I would endeavour to secure the greatest amount of intellectual power consistent with whatever physical capacity may be considered necessary. With regard to a personal matter, I should like to point out that I have been held up as a fierce detractor of the public schools. That is a misconception entirely. I want to do away with myself; there ought not to be any private tutors except for those boys who cannot learn what all boys should know without special help; and I should like to see the public schools forced to do the things that we do now. A parent ought not to be obliged to withdraw his son from a public school to go to a private tutor. It ought to have been an impossibility. I said in a letter I sent to *Truth* some short time ago, "Insist on regulations which shall give the Services the Officers that the military authorities say they must have. Force the Public Endowed Schools and the Universities to do their duty, and admit students of all branches of knowledge without making any compulsory. Raise the age up to which candidates can compete, so as to allow graduates under 20 to compete."

2079. But you must not raise the age so much as not to allow boys to stay at the public schools?—That must be entirely settled by the question "how long is required for boys to acquire the amount of education and knowledge which shall do two things, firstly, satisfy the authorities that they have at the colleges the right raw material, and secondly, that the students know as much as is necessary to enable them to complete their technical instruction?"

2080. Would you like to see the names of the examiners upon the papers?—I am absolutely indifferent upon that point. It was once stated of me that I was a mere tipster, that I was perfectly familiar with all the examination papers for many years, and that if I knew who the examiners were I could pretty well tell what they would want. That was true to a certain extent, because if you put a man to always examine in a certain subject for five or six years running, I should know very nearly the kind of questions he was likely to set. As a matter of fact, when my boys go up for the Indian Civil Service or Woolwich, they do not care what the questions are so long as the examination is perfectly fair and open.

2081. *Lord F. Hervey.* With reference to what has been said about the difference between the examinations for Woolwich and Sandhurst, let me call your attention to the results of the July, 1892, examination. The lowest successful candidate for Sandhurst, and the 118th in order of merit, got 6,654 marks; whereas the lowest successful candidate for Woolwich, and the 50th in order of merit, got only 6,520 marks, so that the 118th Sandhurst man was a better man than the 50th Woolwich man?—I think you know that the Woolwich examiners mark sparingly, and the Sandhurst examiners mark more liberally, at least we think that. If you take the marks of any successful candidate for Woolwich and those of the successful candidate for Sandhurst in same place in order of merit, you would find, I think, that the Woolwich man was a good way ahead of the Sandhurst man.

2082. *The Chairman.* Have you ever prepared any candidates for the Militia?—No, Mr. Gurney has always superintended their preparation.

2083. Have you ever been able to form any opinion as to whether the present minimum of 3,200 marks in their case is too low?—No, I should like, if I may be allowed to do so, to call the attention of the Committee to a review of the German manœuvres which appeared in *The Times* not long ago, in which great stress was laid upon the power of command, and the great tactical ability possessed by the German Officers.

2084. Can you suggest any method by which such things could be tested at the entrance examination for Woolwich and Sandhurst?—Yes, I think the Civil Service Commissioners, with the assistance of the military authorities, could draw up a set of regulations which should combine the highest possible standard of training with the highest scientific knowledge.

2085. Would that help you to find out the man best fitted to command?—Yes, I think so. I had a man under me, a very good classic, who got into Woolwich almost entirely on his classics; it was a desperate struggle to get in, and afterwards he was very nearly turned out; he was kept in only because he was a good man.

2086. *General Sir W. O. Lennox.* Why was he nearly turned out?—Because he knew only classics, and he had the greatest possible difficulty in learning the amount of mathematics and technical subjects required of a candidate before he can get his commission.

[*The Witness withdrew.*]

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APPENDIX I.

Regulations respecting Examinations, &c., for Admission to Royal Military Academy and Royal Military College, and for Direct Commissions offered to Militia Officers and University Candidates, in force up to the date of the abolition of the "Preliminary" Examinations.

A.

Regulations respecting Examination for Admission to the Royal Military Academy and for the First Appointments therefrom to the Royal Regiment of Artillery and Corps of Royal Engineers.

I.—Object of the Royal Military Academy.

1. The Royal Military Academy is maintained for the purpose of affording a special military education to candidates for commissions in the Royal Artillery and Royal Engineers. Only British born or naturalized British subjects will be eligible to offer themselves for examination.

II.—Regulations for Admission.

1. *General Instructions.*

2. Admission to the Royal Military Academy as cadets will be granted to the successful candidates at an open competitive examination in the subjects specified in paragragh 17.

3. The number of cadets admitted to the Academy will vary according to the requirements of the Service, and notice will be given from time to time of the number of vacancies open to competition. Such notice will usually be published about three months before the examination.

4. The dates of admission will be on the Thursday of the week in which the 17th March or 24th September falls each year.

5. The examinations of candidates for admission to the Royal Military Academy as cadets will be conducted by the Civil Service Commissioners as hereinafter specified. A fee of 1*l.* will be required from every candidate admitted to an examination.

6. The number of trials allowed will not exceed three.

7. The successful candidates will be inspected by a Medical Board; and no candidate will be considered eligible for admission to the Royal Military Academy unless certified by the Board to be free from any bodily defects or ailments, and in all respects physically fit for Her Majesty's Service.

No candidate will be admitted to the Academy unless certified by the Medical Board to be in all respects as to height and chest measurement fit for Her Majesty's Service, except where the Board having regard to the candidate's age and physique, expressly state that they are of opinion that there is every reasonable probability of his fulfilling the requirements of the Service in the particulars referred to, at the time of his completing his course of instruction and qualifying for a commission. The admission of such candidate to the Royal Military Academy will only be allowed on the understanding that he will not be granted a commission if he fails to attain the standard of height and chest measurement which may be in force at the time of the entrance examination.*

The medical inspection will be held at the following stations:—Colchester, Devonport, Dover, Edinburgh, London, Portsmouth, York, Belfast, Cork and Dublin. Candidates will be allowed to select the stations at which they wish to be medically examined.

The decision of the Board will in all cases be absolutely final.

* The present minimum standard for Officers is 5 feet 4 inches height, and 33 inches chest measurement.

8. The limits of age for admission to the Academy will be from 16 to 18. Candidates must be within those limits of age on the 1st of December for the winter examination, and on the 1st of July for the summer examination.

2. *Examination of Candidates for Admission by Open Competition.*

9. Candidates for admission by competition will be required to pass—

1. A "preliminary" examination.

2. A "further" examination.

Preliminary Examination.

10. Preliminary examinations will be held on the second Wednesdays in the months of March, June, September and December of each year by the Civil Service Commissioners, to whom intending candidates should apply. The application must be made on the prescribed form (to be obtained from the Secretary, Civil Service Commission) which must reach the office of the Commissioners not later than the 12th of the month preceding the examination, viz., 12th February for the March examination, and so on. No evidence of age, health, or moral character will be required; but in considering the eligibility of candidates for the further examination, no credit will be given for any preliminary examination passed before the age of 14. No limit is placed on the number of trials allowed for the preliminary examination. A fee of 1*l.* will be required from every candidate admitted to an examination.

11. At the preliminary examination candidates will be required to satisfy the Civil Service Commissioners in the following subjects, but no marks will be given:—

(1.) Mathematics—

(*a.*) Arithmetic, including vulgar and decimal fractions, proportion and simple interest.

(*b.*) Euclid, Book I.

(*c.*) Algebra, up to and including simple equations.

(2.) French or German; the examination being limited to translation from the language, and grammatical questions.

(3.) Writing English correctly in a good legible hand from dictation.

(4.) Latin; parsing and translation with the aid of a vocabulary of the harder words.

(5.) The elements of geometrical drawing; including the construction of scales and the use of simple mathematical instruments.*

(6.) Geography.

12. Any candidate who has previously passed the Army preliminary examination before the Civil Service Commissioners in three or more of the above subjects will be exempt from further examination in such subjects. But candidates who have to be examined in two or more subjects will be required to qualify in all at the same examination.

13. Candidates may be exempted from the preliminary examination in all subjects except geometrical drawing, if they can produce a certificate of having passed any of the following examinations, or any examinations accepted in lieu thereof by the Universities or authorities concerned:—

(1.) Oxford. Responsions.

(2.) Cambridge. The previous examination.

(3.) Durham. The first year's examinations.

(4.) The Matriculation examination of the London University.

(5.) The examination of the Oxford and Cambridge Schools Examination Board, provided it embraces mathematics and Latin. If it does not include those subjects, candidates will be required to undergo an examination therein. If they have been granted a lower certificate, they will be required to have obtained (as shown on the certificate) a first class in arithmetic, additional mathematics, French or German, English, geography, and Latin.

(6.) The examination of naval cadets passing out of Her Majesty's ship "Britannia."

* Greater importance will be attached to neatness and exactness of drawing, than to ability to solve geometrical problems.

(7.) The matriculation examination of the Royal University of Ireland.

(8.) The entrance examination at Trinity College, Dublin.

(9.) The preliminary examination in general education of candidates for graduation in medicine at the University of Edinburgh, when the candidate has passed in all the subjects of the Army preliminary examination at not more than two examinations.

(10.) The leaving certificate of the second grade, granted by the Scotch Education Department, when the candidate has passed in all subjects of the Army preliminary examination at not more than two examinations.

(11.) Scotch Universities. The examination of candidates for the Army.

(12.) The examination for a degree or the preliminary examination of the Victoria University, Manchester.

(13.) The preliminary examination of the Royal Military College, Canada.

14. Candidates exempted in all subjects except geometrical drawing may defer their examination in this subject until the further examination. Failing therein, they will be disqualified, and the examination will count as one of the trials allowed under paragraph 6. Candidates claiming exemption under paragraph 13 will be required to submit to the Civil Service Commissioners the certificates on which they found their claim.

Further Examination.

15. The further examinations will be held half-yearly, and will commence on the Tuesday immediately preceding the last Wednesday in June, and on the Tuesday immediately preceding the last Wednesday in November; and every candidate for those examinations must send to the Military Secretary, not later than the 15th May or 15th October respectively, an application to be examined, accompanied by the following papers:—

(*a.*) An extract from the register of his birth; or in default a declaration made by one of his parents or guardians, before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application; or some other satisfactory proof of good moral character for the same period.

(*c.*) A certificate from the Civil Service Commissioners that the candidate has passed the preliminary test for the Royal Military Academy.

16. When a candidate who has once been admitted to the further examination applies to be examined again, he will only be required to forward a certificate as to his moral character for the interval between the two examinations.

17. The subjects of the further examination,* and the maximum number of marks obtainable for each subject, will be as follows:—

CLASS I. (Obligatory.)

	Marks.
(1.) Mathematics.—A thorough knowledge of each of the following four branches of mathematics will be required:—	
(*a.*) Algebra, up to and including the binomial theorem; the theory and use of logarithms	3,000
(*b.*) Euclid, Books I. to IV., and VI.	
(*c.*) Plane trigonometry, up to and including solution of triangles; and mensuration	
(*d.*) Statics and Dynamics: *Statics*—The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers. *Dynamics*—uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. (Analytical methods of solution will not be required)	
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000

* *See* Syllabus issued by Civil Service Commissioners.

CLASS II.—(Any two subjects may be taken up.)

	Marks.
(1.) Higher mathematics (in all the following subjects great importance will be attached to accuracy in numerical results):— Further questions and problems on the subjects of the obligatory examination .. .. Statics: Problems and exercises will be extended to friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required .. .. Dynamics: Problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work .. .. Analytical geometry: Problems on straight line and circle .. Conic sections: Elementary properties, with easy problems both on the analytical and geometrical methods	2,000
(2.) German or French, as alternating with subject 3 in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which due notice will be given ..	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physical geography and geology, chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical.

CLASS III.—(All three subjects may be taken up.)

	Marks.
(1.) English composition, tested by the power of writing an essay or letter	500
(2,) Drawing, freehand..	500
(3.) Drawing, geometrical, including practical plane geometry, and the construction of scales*	1,000

18. Every candidate must satisfy the Civil Service Commissioners in obligatory mathematics, and must in addition obtain in the other subjects he takes up such an aggregate total of marks as may indicate in the judgment of the Commissioners a competent amount of general proficiency.†

Selection of Candidates.

19. If a candidate satisfies the Civil Service Commissioners in the manner stated in the preceding paragraph, the number of marks gained by him in the several subjects in which he has been examined will be summed up, and the resulting total will determine the place of the candidate in the competitive list, the successful candidates being those who stand at the head of the list up to the number of cadetships competed for.

III.—TERMS OF PAYMENT.

20. The terms of payment for cadets at the Royal Military Academy are regulated by the following articles of the Royal Warrant of the 6th of April, 1891:—

"483. The amount to be contributed on behalf of a cadet at Our Royal Military Academy, or Our Royal Military College, shall depend on the position held by his father (whether living or deceased), as an Officer of Our Regular Forces, of the Permanent Staff of Our Auxiliary Forces, of Our Departments as laid down in Articles 263 to 268, of Our Navy, of Our Indian Military or Naval Forces, or of Our Colonial Forces if permanently and exclusively employed with a regularly enrolled regiment.

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* Great importance will be attached to neatness and exactness of drawing.

† The requirements of the aggregate total of marks will come into force at the examination held in June, 1894.

"484. The amount referred to in Article 483 shall be payable half-yearly in advance at the following rates:—

For the son of—	Yearly £
(*a.*) An Officer on the Active List below the substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel in the Army, and Captain or Commander in the Navy	40
A retired Officer who last served in a rank below the above rank, and retired with not less than 20 years' service; or on account of age or non-employment; or on account of ill-health caused by the Service; or on reduction of establishment.	
An Instructor at the Staff College, Royal Military Academy, or Royal Military College	
(*b.*) An Officer on the Active List with the substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel or Colonel in the Army, or a Captain or Commander in the Navy	60
A retired Officer who served in the above rank and retired as stated in paragraph (*a*)	
A Professor at Our Staff College, Royal Military Academy, or Royal Military College	
(*c.*) A Major-General or Lieutenant-General	70
A Vice-Admiral or Rear-Admiral	
(*d.*) A General	80
An Admiral	
(*e.*) A private gentleman	150
An Officer retired from Our Army or Navy, and not coming under any of the previous categories	
(*f.*) For a Queen's Cadet	Nil
(*g.*) For an Indian cadet. By special arrangement with the India Office. This applies only to our Royal Military College.	
(*h.*) For the son of an Officer who has died on full pay, half pay, or retired pay or pension, and whose family have been left in pecuniary distress (subject to the approval of Our Secretary of State)	20
(*i.*) For the sons of all other deceased Officers of whatever rank, whose widows are, or would have been if living, eligible for pension ..	40

"485. If the father of a cadet be promoted, or retire, the rate of contribution shall be altered accordingly.

"486. If a cadet be absent a whole term in consequence of rustication, a payment of 10*l.* shall be required for the privilege of having his name being kept on the rolls of the establishment, and for a vacancy being kept open at the commencement of the next term, except in the case of an orphan, whose annual contribution is only 20*l.*, when the amounts to be paid under such circumstances shall be determined by Our Secretary of of State.

"487. Pay at 3*s.* a-day shall be credited to a cadet to cover the expenses of regimental clothing, messing, washing, and other contingencies. All other necessary expenses which cannot be covered by his pay shall be chargeable to his parent or guardian in addition to the regulated contribution.

"488. If a cadet be absent from sickness during a portion of the term, his pay shall continue to be issued and credited to his account; but no refund of the contribution shall be permitted, except under the special authority of Our Secretary of State, and if such authority be given, the pay for the period of such refund shall cease.

"489. If a cadet be rusticated or removed during a term, his daily pay shall cease from the date of such rustication or removal, and the contribution made for the half-year shall be forfeited."

21. Each cadet, other than a Queen's Cadet, on first joining, will be required to pay, in addition to the regulated contribution, a sum of 25*l.* towards covering the expense of uniform, books, &c., and to bring with him the articles of clothing of which he will receive notice, and which must afterwards be kept up at his own expense. He will also be required to pay the regulated contribution in advance for each half-year

of the time during which he remains under instruction, and a deposit of 5*l.* on account for contingent expenses, which latter sum he will be required to make up on returning to the Royal Military Academy after each vacation towards covering any expense that may be incurred on his account during the ensuing half-year.

IV.—Government and Organization.

22. The Commander-in-Chief will be the President of the Royal Military Academy.

23. An independent inspection by a Board of Visitors, appointed by the Secretary of State for War, and reporting to him, will be made once a year. Such Visitors will not be a permanent body, but will not be all changed at the same time. The report of this Board will be presented to Parliament.

24. The Academy will be under the control of a Governor, who will be a military Officer, appointed by and responsible to the Secretary of State for War, through the Commander-in-Chief.

25. The Governor will be assisted by an Officer styled Commandant and Secretary who will be responsible in his temporary absence for the charge of the establishment. This Officer will have the custody of the records and correspondence of the Academy, and will give the Governor such assistance as he may require.

26. The organization will be on a military basis.

27. The Governor will be assisted in the arrangement of the studies by an Academy Board, composed of the Commandant and the Professors or Senior Instructors of the different branches. The head of each branch will have the general power of supervision and inspection over the studies in his department, with the duty of reporting on them to the Governor.

28. The Governor will, from time to time, assemble and confer with all the Professors and Instructors of each separate branch on matters relating to it.

V.—Discipline.

29. The cadets will be subject to such rules and regulations as are, or may be, from time to time established for the maintenance of good order and discipline at the Academy.

30. The Governor will have the power of rustication, and also of sentencing a cadet (for misconduct) to lose places in the list of successful candidates for commissions. In such cases the circumstances will be reported by the Governor to the Commander-in-Chief.

31. In cases requiring more serious notice, cadets will be liable, on the report of the Governor to the Secretary of State for War through the Commander-in-Chief, to be removed or expelled.

32. The name of any cadet expelled for misconduct will be recorded in the department of the Commander-in-Chief, and will be made known to the First Lord of the Admiralty, the Secretary of State for India, and to the Civil Service Commissioners, in order to prevent the cadet from being admitted into Her Majesty's Naval, Military, Indian, or Civil Service.

33. A cadet will be removed from the Royal Military Academy for moral or physical unfitness.

34. The cadets will form a company, consisting of three divisions, under the Commandant, who will be assisted by an Officer performing the duties of Adjutant and Quarter-master, and by three Lieutenants commanding Divisions charged with the discipline out of studies and the drill.

35. All communications between the cadets and the Commandant for the Governor will be made through the Officers of Divisions, who will reside in the Academy, and will exercise a strict superintendence over their divisions, for which they will be responsible to the Commandant.

36. During the hours of study the cadets will be under the charge of the Professors and Instructors, to whose orders they will be required to pay implicit obedience.

37. The cadets will salute all Officers, Professors, and Instructors belonging to the Academy, whether in or out of uniform, and all other Officers when in uniform.

38. The Professors, Instructors, and Officers of Divisions will have certain limited powers of punishment, within and without the halls of study, at the discretion of the Governor, reporting all punishments which they may inflict to the Commandant.

39. Officers, Professors, and Instructors will not be permitted to give private instruction to cadets, either during the vacation or at any other time, nor to prepare candidates for admission to the Academy.

40. No person whatever belonging to the Royal Military Academy is to receive a present from any cadet, or from the relations or friends of any cadet.

41. The cadets will be required to appear at all times in uniform, except when on leave of absence, or when otherwise exempted by the Governor.

42. A sword will be given at each final examination as a special reward for excellence in conduct.

VI.—Course of Instruction.

43. The length of the Course of Instruction will be two years, divided into four terms.

The Academy terms in each year will be—

(*a.*) From about 17th March to 27th July.

(*b.*) From about 24th September to 17th February, with a short recess at Christmas.

The intermediate periods will constitute the vacations.

44. All the cadets in the third and fourth classes will be educated together. On leaving the third class the cadets promoted to the second class will bifurcate into two separate divisions for Artillery and Engineers respectively, which separation will be maintained for the remainder of the course at the Royal Military Academy.

Cadets passing highest on the list out of the third class will have the choice of joining the Engineer Division, so far as vacancies may be available, with a view to obtaining commissions in the Royal Engineers; the remainder will form the Artillery Division, with a view to obtaining commissions in the Royal Artillery.

When once a cadet has joined any particular division, no transfer will, under any circumstances, be allowed.

A cadet who may have lost a term will forfeit his claim to obtain a prize, or to the award of the Pollock Medal or the Tombs Memorial Scholarship, but will be eligible, if recommended, for the sword given for excellence in conduct under paragraph 42 of these regulations.

45. The following subjects (in addition to drill, riding, and gymnastics) will form the ordinary course of obligatory studies, with the marks assigned to each:—

Fourth and Third Classes.

	Marks.	Marks.
Mathematics*	3,000	(of which 200 for plates, sketches, &c.)
Field Fortification ..	2,000	„ 400 „
Military Topography ..	2,000	„ 800 „
French or German.. ..	1,000	nil
Chemistry and Physics ..	1,000	nil
Model Drawing	300	nil

Second and First Classes.

Subjects common to the Artillery and Engineer Divisions:—

	Marks.	Marks.
Military Topography	1,000 ..	400 for plates, &c.
Tactics	1,000 ..	nil
Military Administration	500 ..	nil
Military Law	500 ..	nil
Chemistry and Physics	1,000 ..	nil

Special to Artillery Division—

	Marks.	Marks.
Artillery Studies	2,000 ..	200 for plates, &c.
Fortification	1,000 ..	200 „

* 800 marks additional will be given in the third class for two papers in Higher Mathematics. In order to count marks in either of these two papers a cadet must obtain at least ·4 of the marks allotted to it, but this examination will not be obligatory.

Special to Engineer Division—

	Marks.		Marks.	
Fortification	2,000	..	400	for plates, &c.
Artillery Studies	1,000	..	100	„
Mathematics	2,000	..	100	„
Freehand Drawing*	1,000	..	nil	„

46. In addition to the above obligatory course, every cadet will be allowed (at his option) to take up as voluntary subjects, during the first and second terms, the foreign language not chosen as an obligatory one, and landscape drawing.

The maximum marks for these subjects will be 1,000 for the language and 700 for landscape drawing, ·5 being the counting minimum in each case.

VII.—Examinations.

47. In order to ensure due diligence during the whole period of residence, there will be examinations at the end of each term, conducted by independent examiners. A cadet failing to pass satisfactorily at any examination will not get class promotion.

48. At the end of the course, those cadets who have passed satisfactory examinations, provided their conduct has been also satisfactory, and they have shown themselves generally fitted for commissions in the Army, will be gazetted as Second Lieutenants, in the Royal Artillery from the Artillery Division, and in the Royal Engineers from the Engineer Division.

49. For class promotion from the fourth and third classes a cadet will be required to obtain ·5 of the marks in mathematics, and in at least three other obligatory subjects, and ·5 of the aggregate.

To count marks in a subject, at least 0·25 of the total of the examination must be obtained.

One-fourth only of the total marks will be allotted to the examination in the fourth class, three-fourths being retained for the examination in the third class.

The marks allowed to count in the fourth class will be added to those allowed to count at the examination in the third class, and the result will determine the order of merit for appointment to the Engineer and Artillery Divisions, but no cadet can be posted to the Engineer Division who does not obtain ·5 in fortification.

The marks obtained in the third and fourth classes will not be carried on.

50. For class promotion from the second class, and for a commission from the first class, the following qualification will be required:—

Artillery Division.—·5 in Artillery and in at least four other subjects, and ·5 of the aggregate.

Engineer Division.—·5 in fortification and in at least five other subjects, and ·5 of the aggregate.

To count marks in a subject, at least ·25 of the total of the examination must be obtained.

One-fourth only of the total marks will be allotted to the examination in the second class, three-fourths being retained for the examination in the first class, except in the subject of mathematics, in which one-half of the total marks will be allotted to the examination in the second class, and one-half in the first class.

The marks allowed to count in the second class will be added to those allowed to count at the examination in the first class. The result will determine the order of merit, and the cadets will be gazetted in their respective corps in the order in which they pass.

51. A cadet will be removed from the Royal Military Academy on the following grounds:—

(1.) If he falls more than one term behind the class with which he originally joined the Royal Military Academy.

(2.) If he fail to acquire a sufficient proficiency in military exercises.

No exception to the above rule will be granted on account of absence from any cause excepting illness. Cases of protracted absence on account of illness will be specially referred for decision to the Secretary of State for War through the Commander-in-Chief.

52. A cadet guilty of copying or using unfair means at any examination will forfeit his examination, and be rusticated for one term; or may, according to circumstances, be more severely dealt with.

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* Cadets of the Artillery Division will be allowed to take up this subject voluntarily, ·5 being required as a counting minimum.

B.

REGULATIONS respecting Examinations for Admission to the Royal Military College and for First Appointments therefrom to the Army.

I.—OBJECT OF THE ROYAL MILITARY COLLEGE.

1. The Royal Military College is maintained for the purpose of affording a special military education to candidates for commissions in the Cavalry and Infantry. Only British born or naturalized British subjects will be eligible to offer themselves for examination.

II.—REGULATIONS FOR ADMISSION.

1. *General Instructions.*

2. Admission to the Royal Military College as cadets will be granted—

(*a.*) To successful candidates at a competitive examination in the subjects specified in paragraph 14.

(*b.*) To Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour; subject to the qualifying examination prescribed by paragraphs 21 and 22.

3. The number of cadets admitted to the college will vary according to the requirements of the Service, and notice will be given from time to time of the number of vacancies open to competition. Such notice will usually be published about three months before the examination.

4. The dates of admission will be the 10th February and 1st September in each year, or the Tuesday following if either of those dates falls on a Sunday or Monday.

5. The examinations of candidates for admission to the Royal Military College as cadets will be conducted by the Civil Service Commissioners as hereafter specified. A fee of 1*l.* will be required from every candidate admitted to an examination. The number of trials allowed will not exceed three.

6. The successful candidates will be inspected by a Medical Board; and no candidate will be considered eligible for admission to the Royal Military College unless certified by the Board to be free from any bodily defects or ailments, and in all respects physically fit for Her Majesty's Service.

No candidate will be admitted to the College unless certified by the Medical Board to be in all respects as to height and chest measurement fit for Her Majesty's Service, except where the Board, having regard to the candidate's age and physique, expressly state that they are of opinion that there is every reasonable probability of his fulfilling the requirements of the Service in the particulars referred to, at the time of his completing his course of instruction and qualifying for a commission. The admission of such candidate to the Royal Military College will only be allowed on the understanding that he will not be granted a commission if he fails to attain the standard of height and chest measurement which may be in force at the time of the entrance examination.*

The medical inspection will be held at the following stations:—Colchester, Devonport, Dover, Edinburgh, London, Portsmouth, York, Belfast, Cork, and Dublin. Candidates will be allowed to select the stations at which they wish to be medically examined.

The decision of the Board will, in all cases, be absolutely final.

7. Cases of exceptional shortness of stature or immature physique will be referred to the War Office for special consideration. The entry of any such candidate into the Royal Military College will be conditional on his accepting the terms of the decision arrived at in his case.

8. The limits of age for admission to the Royal Military College will be from 17 to 20, up to and including the winter examination of 1892, after which it will be from 17 to 19.

Candidates must be within the above limits of age on the 1st December for the winter "further" examination, and on the 1st July for the midsummer "further" examination.

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* The present minimum standard for Officers, for regiments of the Line, is 5 feet 4 inches height, and 33 inches chest measurement.

Competitors who desire to obtain commissions in West India Regiment may be admitted up to the age of 24 till July, 1892; up to that of 23 till July, 1893; up to that of 22 till July, 1894; and up to that of 21 after July, 1894.

2. *Examination of Candidates for admission by Open Competition.*

9. Candidates for admission by competition will be required to pass—

1. A "preliminary" examination.
2. A "further' examination.

Preliminary Examination.

10. Preliminary examinations will be held on the second Wednesdays in the months of March, June, September, and December of each year by the Civil Service Commissioners, to whom intending candidates should apply. The application must be made on the prescribed form (to be obtained from the Secretary, Civil Service Commission) which must reach the office of the Commissioners not later than the 12th of the month preceding the examination, viz., the 12th of February for the March examination, and so on. No evidence of age, health, or moral character will be required; but in considering the eligibility of candidates for the further examination, no credit will be given for any preliminary examination passed before the age of 14. No limit is placed on the number of trials allowed for the preliminary examination. A fee of 1*l.* will be required from every candidate admitted to an examination.

11. At the preliminary examination candidates will be required to satisfy the Civil Service Commissioners in the following subjects, but no marks will be given:—

(1.) Mathematics—

(*a.*) Arithmetic, including vulgar and decimal fractions, proportion and simple interest.

(*b.*) Euclid, Book I.

(*c.*) Algebra, up to and including simple equations.

(2.) French or German; the examination being limited to translation from the language, and grammatical questions.

(3.) Writing English correctly in a good legible hand from dictation.

(4.) Latin; parsing and translation with the aid of a vocabulary of the harder words.

(5.) The elements of geometrical drawing; including the construction of scales, and the use of simple Mathematical instruments.*

(6.) Geography.

Any candidate who has previously passed an examination before the Civil Service Commissioners in three or more of the above subjects will be exempt from further examination in such subjects. But candidates who have to be examined in two or more subjects will be required to qualify in all at the same examination.

12. Candidates may be exempted from the preliminary examination in all subjects except geometrical drawing, if they can produce a certificate of having passed any of the following examinations, or any examinations, accepted in lieu thereof by the Universities or authorities concerned:—

(1.) Oxford. Responsions.

(2.) Cambridge. The previous examination.

(3.) Durham. The first year's examinations.

(4.) The matriculation examination of the London University.

(5.) The examination of the Oxford and Cambridge Schools Examination Board, provided it embraces mathematics and Latin. If it does not include those subjects, candidates will be required te undergo an examination therein. If they have been granted a lower certificate, they will be required to have obtained (as shown on the certificate) a first class in arithmetic, additional mathematics, French or German, English, geography, and Latin.

(6.) The examination of Naval cadets passing out of Her Majesty's ship "Britannia."

(7.) The Matriculation examination of the Royal University of Ireland.

(8.) The entrance examination at Trinity College, Dublin.

* Greater importance will be attached to neatness and exactness of drawing, than to ability to solve geometrical problems.

(9.) The preliminary examination in general education of candidates for graduation in medicine at the University of Edinburgh, when the candidate has passed in all the subjects of the Army preliminary examination at not more than two examinations.

(10.) The leaving certificate of the second grade, granted by the Scotch Education Department, when the candidate has passed in all the subjects of the Army preliminary examination at not more than two examinations.

(11.) Scotch Universities. The examination of candidates for the Army.

(12.) The examination for a degree or the "preliminary examination" of the Victoria University, Manchester.

(13.) The preliminary examination of the Royal Military College, Canada.

Candidates exempted in all subjects except geometrical drawing may defer their examination in this subject until the further examination. Failing therein they will be disqualified, and the examination will count as one of the trials allowed under paragraph 5. Candidates claiming exemption under this paragraph will be required to submit to the Civil Service Commissioners the certificates on which they found their claim.

Further Examinations

13. The further examinations will be held half-yearly, and will commence on the last Wednesday in June and the last Wednesday in November; and every candidate for those examinations must send to the Military Secretary, not later than the 15th May or 15th October respectively, an application in his own handwriting to be examined, accompanied by the following papers:—

(*a.*) An extract from the register of his birth; or in default a declaration made by one of his parents or guardians before a magistrate, giving the date and place of his birth. A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application, or some other satisfactory proof of good moral character.

(*c.*) A statement of the date at which he passed the preliminary examination.

When a candidate who has once been admitted to the further examination applies to be examined again, he will only be required to forward a certificate as to his moral character for the interval between the two examinations.

14. The subjects of the further examination,* and the maximum number of marks obtainable for each subject, will be as follows:—

CLASS I. (Obligatory.)

	Marks.
(1.) Mathematics.—Algebra, up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I. to IV. and VI.; plane trigonometry, up to and including solution of triangles, and mensuration	2,500
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000

CLASS II. (Any two subjects may be taken up.)

(1.) Higher mathematics.—(In all the following subjects, great importance will be attached to accuracy in numerical results):—	
Further questions and problems on the subjects of the obligatory examination	
Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required	2,000
Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions and work. (Analytical methods of solution, but not the use of the differential calculus will be involved)	
Analytical geometry: Problems on straight line and circle ..	
Conic sections: Elementary properties, with easy problems, both on the analytical and geometrical methods	

* *See* Syllabus issued by Civil Service Commissioners.

	Marks.
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physical geography and geology, chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical.

CLASS III. (All three subjects may be taken up.)

	Marks.
(1.) English composition, tested by the power of writing an essay or letter	500
(2.) Drawing, freehand	500
(3.) Drawing, geometrical, including practical plane geometry and the construction of scales*	1,000

15. The following will be the mode of selecting the successful candidates at the open competitive examination:—

The number of marks gained by each candidate in the several subjects in which he has been examined will be summed up, and the resulting total will determine the place of the candidate in the competitive list, the successful candidates being those who stand at the head of the list up to the number of cadetships competed for.

3. *Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour.*

16. Queen's Cadets will be appointed by the Secretary of State for War, on the recommendation of the Commander-in-Chief or First Lord of the Admiralty, from sons of Officers of the Army, Royal Navy, Royal Marines, and permanent Colonial Military Forces or irregular troops, when acting with or in support of the Regular Forces in the field who have fallen in action, or have died of wounds received in action, or of disease contracted on service abroad, and who have left their families in reduced circumstances. Queen's Cadets will be granted an educational allowance of 40*l.* a-year, tenable between the ages of 13 and 17.

Candidates who, on account of their age, are unable to receive the educational allowance, though eligible in other respects to be nominated to and examined for Queen's Cadetships, will, after passing the necessary qualifying examination, be entitled to a free course of instruction at the Royal Military College.

17. Honorary Queen's Cadets will be appointed from—

(*a.*) The sons of Officers of the British Army, Indian Army, Royal Navy, or Royal Marines who were killed in action, or who have died of wounds received in action within six months of such wounds having been received, or from illness brought on by fatigue, privation, or exposure incident to active operations in the field before an enemy, within six months after their having been first certified to be ill.

(*b.*) The sons of Officers of the British Army, and of the Indian Army, who have attained the brevet or substantive rank of Major or Lieutenant-Colonel, and have performed long or distinguished service, provided that their sons are, on account of such service, recommended by the Commander-in-Chief, with the approval of the Secretary of State, and that the special grounds for the recommendation be set forth in each case.

The number so appointed of sons of Officers of the British Army will not exceed ten, and that of sons of Officers of the Indian Army will not exceed five, in any one year.

An Honorary Queen's Cadetship will not carry with it any pecuniary advantage, and no declaration as to the circumstances of the deceased Officer's family is required; but in all other respects Honorary Queen's Cadets enjoy the same privileges as Queen's Cadets.

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* Great importance will be attached to neatness and exactness of drawing.

18. Applications for Queen's Cadetships and Honorary Queen's Cadetships, except as in paragraph 19, should be addressed to the Military Secretary, if the candidate is the son of an Officer of the Army, or to the Secretary of the Admiralty if the candidate is the son of an Officer of the Royal Navy or Royal Marines.

19. Indian Cadets will be nominated by the Secretary of State for India in Council, under the provisions of 21 and 22 Vict., c. 106, and 23 and 24 Vict., c. 100, from sons of persons who have served in India in the Military or Civil Service of Her Majesty or of the East India Company. Applications for Indian Cadetships, and for Honorary Queen's Cadetships, for the sons of Officers of the Indian Army, should be addressed to the Military Secretary, India Office.

20. Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, or Pages of Honour, when ready for examination, will apply in the manner directed by paragraphs 10 or 13.

21. Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour will be required, before admission to the Royal Military College, to pass a qualifying entrance examination only, *i.e.*, after having passed the preliminary examination under paragraph 11, or having obtained exemption from it under paragraph 12, they must attend the further examination referred to in paragraph 14, and must obtain thereat such marks as may indicate, in the judgment of the Civil Service Commissioners, a competent amount of general proficiency.

22. A Queen's Cadet, Honorary Queen's Cadet, Indian Cadet, or Page of Honour who can produce a University certificate, as prescribed in paragraph 1 of the regulations under which commissions in the Army may be obtained by University candidates, will, except as regards the examination in geometrical drawing, be exempt from the qualifying entrance examination described in paragraph 21.

III.—Terms of Payment.

23. The terms of payment for cadets of the Royal Military College are regulated by the following articles of the Royal Warrant of the 6th April, 1891:—

483. The amount to be contributed on behalf of a cadet at Our Royal Military Academy, or Our Royal Military College, shall depend on the position held by his father (whether living or deceased) as an Officer of Our Regular Forces, of the Permanent Staff of Our Auxiliary Forces, of Our Departments as laid down in Articles 263 to 268, of Our Navy, of Our Indian Military or Naval Forces, or of Our Colonial Forces if permanently and exclusively employed with a regularly enrolled regiment.

484. The amount referred to in Article 483 shall be payable half-yearly in advance at the following rates:—

For the son of—

	Yearly. £
(*a.*) An Officer on the Active List below the substantive rank (as regards combatant Officers) or the rank (as regards departmental Officers) of Lieutenant-Colonel in the Army, and Captain or Commander in the Navy	
A retired Officer who last served in a rank below the above rank, and retired with not less than 20 years' service; or on account of age or non-employment; or on account of ill-health caused by the Service; or on reduction of establishment	40
An Instructor of the Staff College, Royal Military Academy, or Royal Military College	
(*b.*) An Officer on the Active List with the substantive rank (as regards combatant Officers) or the rank (as regards departmental Officers) of Lieutenant-Colonel or Colonel in the Army; or a Captain or Commander in the Navy	
A retired Officer who last served in the above rank and retired as stated in paragraph (*a*)	60
A Professor at our Staff College, Royal Military Academy, or Royal Military College	
(*c.*) A Major-General or Lieutenant-General	
A Vice-Admiral or Rear-Admiral	70
(*d.*) A General	
An Admiral	80
(*e.*) A private gentleman	
An Officer retired from our Army or Navy, and not coming under any of the previous categories	150
(*f.*) For a Queen's Cadet	Nil.
(*g.*) For an Indian cadet. By special arrangement with the India Office. This applies only to Our Royal Military College.	

	Yearly. £
(*h*,) For the son of an Officer who has died on full pay, half-pay, or retired pay or pension, and whose family has been left in pecuniary distress (subject to the approval of Our Secretary of State)	20
(*i*.) For the sons of all other deceased Officers, of whatever rank, whose widows are, or would have been, if living, eligible for for pension	40

485. If the father of a cadet be promoted, or retire, the rate of contribution shall be altered accordingly.

486. If a cadet be absent a whole term in consequence of rustication, a payment of 10*l.* shall be required for the privilege of his name being kept on the rolls of the establishment, and for a vacancy being kept open at the commencement of the next term; except in the case of an orphan whose annual contribution is only 20*l.*, when the amounts to be paid under such circumstances shall be determined by Our Secretary of State.

487. Pay at 3*s.* a day shall be credited to a cadet to cover the expenses of regimental clothing, messing, washing and other contingencies. All other necessary expenses which cannot be covered by his pay shall be chargeable to his parent or guardian, in addition to the regulated contribution.

488. If a cadet be absent from sickness during a portion of the term, his pay shall continue to be issued and credited to his account; but no refund of the contribution shall be permitted except under the special authority of Our Secretary of State, and if such authority be given, the pay for the period of such refund shall cease.

489. If a cadet be rusticated or removed during a term, his daily pay shall cease from the date of such rustication or removal, and the contribution made up for the half year shall be forfeited.

24. Each cadet, other than a Queen's or Indian cadet, on first joining will be required to pay, in addition to the regulated contribution, a sum of 25*l.* towards covering the expense of uniform, books, &c., and to bring with him the articles of clothing of which he will receive notice, and which must afterwards be kept up at his own expense. He will also be required to pay the regulated contribution in advance, for each half year of the time during which he remains under instruction; and a deposit of 5*l.* on account for contingent expenses, which latter sums he will be required to make up on returning to the Royal Military College after each vacation, towards covering any expense that may be incurred on his account during the ensuing half year.

IV.—Government and Organization.

25. The Commander-in-Chief will be the President of the Royal Military College.

26. An independent inspection by a Board of Visitors, appointed by the Secretary of State for War, and reporting to him, will be made once a year. Such visitors will not be a permanent body, but will not be all changed at the same time. The report of this Board will be presented to Parliament.

27. The College will be under the control of a Governor, appointed by and responsible to the Secretary of State for War through the Commander-in-Chief.

28. The Governor will be assisted by a Staff Officer, styled Assistant Commandant and Secretary, who will perform the duties of Adjutant, and will have the custody of the records and correspondence of the College.

29. The organization will be on a military basis.

30. The Governor will be assisted in the arrangement of the studies by a Board, composed of the Assistant Commandant and the Professors or Senior Instructors of the different branches. The head of each branch will have the general power of supervision and inspection over the studies in his department, with the duty of reporting on them to the Governor.

31. The Governor will from time to time assemble and confer with all the Professors and Instructors of each separate branch on matters relating to it.

V.—Discipline.

32. The cadets will be subject to such rules and regulations as are, or may from time to time, be established for the maintenance of good order and discipline at the College.

33. The Governor will have the power of rustication, and also of sentencing a cadet for misconduct to lose places in the list of successful candidates for commissions. In such cases the circumstances will be reported by the Governor to the Commander-in-Chief.

34. In cases requiring more serious notice, cadets will be liable, on the report of the Governor to the Secretary of State for War through the Commander-in-Chief, to be removed or expelled.

35. The name of any cadet expelled for misconduct will be recorded in the department of the Commander-in-Chief, and will be made known to the First Lord of the Admiralty, the Secretary of State for India, and to the Civil Service Commissioners, in order to prevent the cadet from being admitted into Her Majesty's Naval, Military, Indian, or Civil Service.

36. A cadet will be removed from the Royal Military College for moral or physical unfitness.

37. The cadets will be distributed in divisions, each division being under the immediate charge of one of the Officers selected by the Governor.

38. All communications between the cadets and the Assistant Commandant for the Governor will be made through the Officers of Division, who will reside in the College, and will exercise a strict superintendence over their divisions, for which they will be responsible to the Assistant Commandant. They and the unmarried Officers will mess with the cadets.

39. During the hours of study the cadets will be under the charge of the Instructing Officers, to whose orders they will be required to pay implicit obedience.

40. The cadets will salute all Officers belonging to the College, whether in or out of uniform, and all other Officers when in uniform.

41. The Professors and Instructors will have certain limited powers of punishment, within and without the halls of study, at the discretion of the Governor, reporting all punishments which they may inflict to the Assistant Commandant.

42. Officers will not be permitted to give private instruction to cadets, either during the vacation or at any other time; nor to prepare candidates for admission to the College.

43. No person whatever belonging to the Royal Military College is to receive a present from any cadet, or from the relations or friends of any cadet.

44. The cadets will be required to appear at all times in uniform, except when on leave of absence, or when otherwise exempted by the Governor.

45. A sword will be given at each final examination as a special reward for excellence in conduct.

VI.—Course of Instruction.

46. The length of the course of instruction will be 18 months divided into three terms.

The College terms will be—

The intermediate periods will constitute the vacations.

(*a.*) From the 10th February to about the 15th July, with suspension of study during a fortnight at Easter.

(*b.*) From the 1st September to about the 15th December.

47. The following subjects will form the ordinary course of obligatory study:—

	Marks.
Military administration	300
Military law..	300
Tactics, including musketry	600*
Fortification..	900†
Military topography..	800‡
Drill	200
Riding	200
Gymnastics	200

* Of which 150 for tactical schemes.
† Of which 300 for plates, sketches, &c.
‡ Of which 200 for plates, sketches, &c.

VII.—Examinations.

48. In order to ensure due diligence during the whole period of residence, there will be examinations at the end of each term. A cadet failing to pass satisfactorily at any examination will not get class promotion.

49. At the end of the course the cadets will be required to pass an examination in the field and on paper, conducted by independent examiners, and those who pass a satisfactory examination, provided their conduct has been also satisfactory, and they have shown themselves generally fitted for commissions in the Army, will be gazetted to regiments as Second Lieutenants, as far as possible in the order in which they pass.

50. In order to obtain a commission, a cadet will be required to obtain at the final examination ·5 of the aggregate marks and one-third of the examiner's marks in each subject except riding and gymnastics, in which a counting minimum of one-third will be required.

51. A cadet guilty of copying or of using unfair means at any examination will forfeit his examination, and be rusticated for one term, or may, according to circumstances, be more severely dealt with.

52. Fifty marks will be given towards the aggregate of each of the under Officers as a reward for their services, if recommended by the Governor.

53. A cadet will be removed from the Royal Military College on the following grounds:—

(1.) If he fall more than one term behind the class with which he originally joined the Royal Military College.

(2.) If he fail to acquire a sufficient proficiency in military exercises.

No exception to the above rule will be granted on account of absence from any cause excepting illness. Cases of protracted absence on account of illness will be specially referred for decision to the Secretary of State for War through the Commander-in-Chief.

C.

Regulations under which Commissions in the Army may be obtained by Officers in the Militia.

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1. Commissions in the Army will be granted to Subalterns of Militia Artillery, Engineers, or Infantry, who are successful candidates at a competitive examination, under the following conditions:—

2. A candidate will be required—

(*a.*) To have served two annual trainings with the regiment to which he belongs, each training to be in a distinct year, and to have passed the examination and obtained the certificate (Army Form E 527) required of a Subaltern Officer before the end of the second training after his appointment.

(*b.*) To have completed a service of 15 months in the corps to which he belongs by the 15th January and 15th July for the March and September examinations respectively.

(*c.*) In the case of candidates who are more than 22 years old, to have served three annual trainings, and to have obtained the certificate referred to in (*a*) before the end of the third training.

3. A candidate for a commission in the Royal Artillery must be a Subaltern of Artillery Militia, who, in addition to the foregoing conditions, has passed the School of Auxiliary Artillery at Woolwich and obtained the *p.s.* certificate, Army Form E 502.

4. A Subaltern of Militia who was eligible for admission to the Royal Military College as a Page of Honour may, subject to the conditions stated in paragraphs 2 and 5, be granted a commission in the Army on qualifying in the military subjects laid down in paragraph 25.

Literary Examination.

5. Subject to the exceptions stated in paragraphs 8 and 14, a candidate must, before presenting himself for the competitive examination, have passed—

(1.) A "preliminary" examination.

(2.) A "further" examination.

Preliminary Examinations.

6. Preliminary examinations will be held on the second Wednesdays in the months of March, June, September, and December of each year by the Civil Service Commissioners, to whom intending candidates should apply. The application must be made on the prescribed form (to be obtained from the Secretary, Civil Service Commission), which must reach the office of the Commissioners not later than the 12th of the month preceding the examination, viz., the 12th of February for the March examination, and so on. No evidence of age, health, or moral character will be required. No limit is placed on the number of trials allowed for the preliminary examination. A fee of 1*l.* will be required from every candidate admitted to an examination.

7. At the preliminary examination candidates will be required to satisfy the Civil Service Commissioners in the following subjects, but no marks will be given:—

(1.) Mathematics—

(*a.*) Arithmetic, including vulgar and decimal fractions, proportion, and simple interest.

(*b.*) Euclid, Book I.

(*c.*) Algebra, up to and including simple equations.

(2.) French or German, the examination being limited to translation from the language and grammatical questions.

(3.) Writing English correctly, in a good legible hand, from dictation.

(4.) Latin: parsing and translation, with the aid of a vocabulary of the harder words.

(5.) The elements of geometrical drawing, including the construction of scales and the use of simple mathematical instruments.*

(6.) Geography.

Any candidate who has previously passed the Army preliminary examination before the Civil Service Commissioners in three or more of the above subjects will be exempt from further examination in such subjects. But candidates who have to be examined in two or more subjects will be required to qualify in all at the same examination.

8. Candidates may be exempted from the preliminary examination in all subjects except geometrical drawing, if they can produce a certificate of having passed any of the following examinations, or any examinations accepted in lieu thereof, by the Universities or authorities concerned:—

(1.) Responsions at Oxford.

(2.) The Matriculation Examination of the London University.

(3.) The Matriculation Examination of the Royal University of Ireland.

(4.) The Examination of the Oxford and Cambridge Schools Examination Board, provided it embraces mathematics and Latin. If it does not include those subjects, candidates will be required to undergo an examination therein. If they have been granted a lower certificate, they will be required to have obtained (as shown on the certificate) a first class in arithmetic, additional mathematics, French or German, English, geography and Latin.

(5.) The Examination for a Degree or the "Preliminary Examination" of the Victoria University, Manchester.

(6.) The Examination of Naval cadets passing out of Her Majesty's ship "Britannia."

(7.) The Preliminary Examination in general education of candidates for graduation in medicine at the University of Edinburgh, when the candidate has passed in all the subjects of the Army preliminary examination at not more than two examinations.

(8.) The Entrance Examinations at Trinity College, Dublin.

(9.) The Leaving Certificate of the Second Grade granted by the Committee of Council on Education in Scotland, when the candidate has passed in all the subjects of the Army preliminary examination at not more than two examinations.

(10.) The Preliminary Examination of the Royal Military College, Canada.

9. Candidates exempted in all subjects except geometrical drawing may defer their examination in this subject until the further examination. Failing therein, they will be disqualified, and the examination will count as one of the trials allowed under paragraph 11. Candidates claiming exemption under this paragraph will be required to submit to the Civil Service Commissioners the certificates on which they found their claim.

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* Greater importance will be attached to neatness and exactness of drawing, than to ability to solve geometrical problems.

Further Examinations.

The further examinations will be held by the Civil Service Commissioners half-yearly, viz., on the second Tuesday in April and in November.

11. A Militia Subaltern Officer who is desirous of attending one of these examinations must apply to his Commanding Officer, at such date as will allow of the Commanding Officer forwarding the application to the Military Secretary not later than the 15th February or 15th August, for the April and November examinations respectively. The Commanding Officer, in forwarding the application, will certify that the candidate is (having regard to the maximum limit laid down in paragraph 17) eligible in point of age, and that he will be prepared, when necessary, to recommend him in the manner prescribed in paragraph 19. The address of the candidate should at the same time be notified. A statement of the date at which he passed the preliminary examination should also be furnished. Not more than three trials at these examinations will be allowed.

12. The subjects of the further examination,* and the maximum number of marks obtainable for each subject, will be as follows :—

CLASS I. (Obligatory.)

	Marks.
(1.) Mathematics, viz., algebra, up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I. to IV. and VI.; plane trigonometry, up to and including solution of triangles; and mensuration	2,500
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000

CLASS II. (Any two subjects may be taken up.)

(1.) Higher mathematics.—(In all the following subjects great importance will be attached to accuracy in numerical results) :— Further questions and problems on the subjects of the obligatory examination. Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required. Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions, and work. (Analytical methods of solution, but not the use of the differential calculus, will be involved. Analytical geometry: Problems on straight line and circle. Conic sections: Elementary properties, with easy problems both on the analytical and geometrical methods.	2,000
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry: Elements of inorganic chemistry	2,000
(6.) Physics: Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physical geography and geology: chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses.	2,000

In each of the subjects (5), (6), and (7), the examination will be partly practical.

CLASS III. (All three subjects may be taken up.)

(1.) English composition, tested by the power of writing an essay or letter.	500
(2.) Drawing, freehand	500
(3.) Drawing, geometrical, including practical plane geometry, and the construction of scales†	1,000

* *See* Syllabus issued by the Civil Service Commissioners.

† Great importance will be attached to neatness and exactness of drawing.

13. To pass this examination a candidate must obtain, in the subjects which he takes up, such an aggregate total of marks as may indicate (in the judgment of the Civil Service Commissioners) a competent amount of general proficiency.

Candidates for commissions in the Royal Artillery must also obtain half the marks allotted to mathematics in Class I.

14. A candidate will be exempted from the "further examination" if he has previously passed an examination before the Civil Service Commissioners in the same subjects. A candidate will also be exempted from all examinations, except in geometrical drawing, if he can produce a certificate from the proper University authority that he has passed either—

(*a.*) The examination for the degree of B.A. or M.A. at one of the following Universities:—

Oxford,	Edinburgh,
Cambridge,	St. Andrews,
Durham,	Glasgow,
London,	Aberdeen,
Dublin,	The Royal University, Ireland,

or (*b*) one of the following University Examinations:—

Oxford..	The "First Public Examination" or the "Preliminary Examination in Law and Natural Science."
Cambridge	The "Previous Examination."
London	The "First Examination" for the degrees of B.A., LL.B., B.Sc., or M.B.
Dublin..	The "Final Examination of the Senior Freshman year," or the "Final Examination of the School of Engineering."
Durham	The "First Year's Examinations."
The Royal University, Ireland.	The "Second University Examination in Arts, or the Second Professional Examination in Engineering."
Scotch Universities ..	The "Examination of Candidates for the Army."

or (*c.*) some other test which is accepted by the University as exempting from the above examinations.

15. Candidates for commissions in the Royal Artillery will be exempted from the examination in mathematics, Class I., of the "further" examination, if they can produce a certificate from the proper University authority of having passed one of the following examinations:—

Oxford.—Any class in the mathematical honours at first or second public examination.

Cambridge.—Any degree with mathematical honours, or the previous examination including the additional subjects prescribed for candidates for honours.

Dublin.—Any honours in mathematics at the Trinity or Michaelmas term examinations of junior freshmen, and any honours in mathematics at an examination of senior freshmen.

Royal University of Ireland.—Any honours in mathematics at a first or subsequent University examination.

16. A candidate producing a certificate under paragraph 14 will be required to attend one of the examinations referred to in paragraph 5, for the purpose of passing an examination in geometrical drawing, for which permission is to be obtained as in paragraph 6; or he may, with the same view, be examined at the periodical tests for the Royal Military College.

Competitive Examination in Military Subjects.

17. A candidate will be allowed to take part in the competitive examination, provided that he is recommended by his Commanding Officer, and is qualified under paragraphs 2 and 3 of these regulations; also that he is under the age of 22 on the 1st of January preceding the competitive military examination which he may be allowed to attend.

The limit of age for candidates who have completed three annual trainings will be extended fo 23.

18. Competitive examinations of candidates from the Militia for Army commissions will be held twice a year, in the months of March and September, before Boards of Officers appointed for the purpose at the several stations named below. Due notice will be given of the day on which the examinations will be held.

London.	Dublin.
Aldershot.	York.
Portsmouth.	

19. The application of a Militia Subaltern Officer to be admitted to the competitive examination will be submitted through the Commanding Officer, who will be required to state whether he can recommend the Officer as a fit and proper person for a commission in the Army, and to certify that he has performed his duties whilst in the Militia in a thoroughly satisfactory manner, and that there is nothing against his character. In forwarding the same, the Officer Commanding the Regimental or Militia Artillery District, or the Commanding Royal Engineer, and the General Officer Commanding the district will also, if they are able, state their opinion of the candidate. In the event of the Commanding Officer being unable to recommend the candidate, the special reasons will be stated.

Subalterns of Militia should state in their applications whether they are candidates for the Royal Artillery, Cavalry or Infantry.

20. Commanding Officers should ascertain before the dates fixed for sending in applications for the competitive examination, whether there are any subalterns belonging to their corps who are desirous of competing.

21. The applications must be forwarded to the Military Secretary, Horse Guards, War Office, before the 15th January and 15th July respectively, after which dates no application will be entertained. Applications should be accompanied by—

(*a.*) A certificate of birth, or in default, a declaration made by one of the candidate's parents or guardians before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is inserted therin.

(*b.*) A certificate of having served the required number of annual trainings (each training in a distinct year), and of having completed a service of 15 months in the corps to which the candidate belongs.

If the training of a regiment takes place too late in the year to allow of this certificate being forwarded before the 15th July a provisional certificate should be sent by the Commanding Officer stating that the candidate will have completed the required number of trainings before the date fixed for holding the competition, and that the usual certificate will be furnished on the completion of the training. In such case the full certificate must be forwarded immediately after the expiration of the training.

(*c.*) A certificate, on Army Form E 527, showing also the date on which the finding of the Board which granted the certificate was approved.

(*d.*) A statement of the date on which the candidate passed the examination described in paragraph 12, or a University certificate as prescribed in paragraph 14, together with a statement of the date on which the candidate qualified in geometrical drawing.

(*e.*) The candidate's address, and an intimation stating at which of the stations named in paragraph 18 he wishes to attend for examination.

22. After the receipt of the application and documents referred to in paragraph 21, instructions will be issued in due course to the candidate as to the place and time at which he will be required to present himself for the competitive examination. After these instructions have been issued no change in the station for examination will be permitted.

23. Unsuccessful candidates who wish to compete again must apply for permission through their Commanding Officers, stating any change in their address, or in the station at which they wish to be examined, but the other certificates need not be repeated. Subject to the rule as to age in paragraph 17, candidates will be allowed three trials.

24. All candidates will be inspected by a Medical Board immediately before the competitive examination; and no candidate will be considered eligible for a commission unless certified by the Board to be free from any bodily defects or ailments, and in all respects as to height and physical qualities, fit for Her Majesty's Service. Any candidate unfavourably reported upon will only be allowed to proceed with the examination upon the distinct understanding that, if successful in the competition, he will be subjected to further inspection by a special Medical Board, and will forfeit all advantage to which his position on the list would otherwise have entitled him, unless pronounced to be physically fit in all respects for military service.

25. The subjects of the competitive examination and the maximum marks obtainable in each subject will be as follows:—

	Marks.
1. Fortification	600
2. Military topography	600
3. The elements of tactics	600
4. Military law	600

26. In addition to obtaining a sufficiently high place in the order of merit, a candidate will be required to obtain in any case ·25 of the marks in each subject, and ·5 of the aggregate.

27. The scope will be that embraced by the synopsis of the course of instruction (in the subjects specified in paragraph 25) at the Royal Military College. There will, however, be no practical out-of-door examination in any subject. The text books will be those in use at the time at the Royal Military College.

28. The number of commissions to be allotted to the successful competitors at each of the half-yearly competitive examinations will vary according to the requirements of the Service. Notice of the number of vacancies open to competition will be published about three months before the examination.

29. The names of the successful competitors will be published in order of merit, and each competitor will be informed of his place on the list, and the marks obtained by him in each subject.

30. The principle on which these commissions are offered being that of pure competition, it follows that candidates who, from their position on the list are not successful in obtaining a commission, will not have any subsequent claim thereto without undergoing another competitive examination.

D.

REGULATIONS under which Commissions in the Army may be obtained by University Candidates.

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1. Subject to the following conditions, commissions in the Army may be granted to graduates in Arts or any one who has passed the examination for the degree of B.A. or M.A. at one of the following Universities:—

Oxford,	Edinburgh.
Cambridge,	St. Andrews,
Durham,	Glasgow,
London,	Aberdeen,
Dublin,	The Royal University, Ireland,

or to students who have passed the examination specified below at any of the following Universities:—

Oxford	The "First Public Examination," or the "Preliminary Examination in Law and Natural Science."
Cambridge	One of the parts of the "General Examination," or Part I. of any "Tripos Examination."
London	The "First Examination" for the degrees of B.A., LL.B., B.Sc., or M.B.
Dublin	The "Final Examination of the Senior Freshman year," or The "Final Examination of the School of Engineering."
Durham	"The first year's Examinations."
The Royal University, Ireland ..	"The second University Examination in Arts, or the second Professional Examination in Engineering."
Scotch Universities	The "Examination of Candidates for the Army."
Victoria University, Manchester ..	The intermediate examination.

2. The limits of age will be as follows:—

For students who have passed the examination specified in paragraph 1 ..	17–22
For graduates	17–23

The limits of age will be ruled by the 1st July for the summer, and by the 1st December for the winter examinations.

3. A graduate or student of one of the Universities specified in paragraph 1 who is a British-born or naturalized British subject, and who is desirous of becoming a candidate

for a commission in the Army, must send an application in his own handwriting to the Military Secretary, not later than the 15th of May or 15th of October respectively. The application must be accompanied by—

(*a.*) An extract from the register of his birth; or, in default, a declaration made by one of his parents or guardians before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application, or some other satisfactory proof of good moral character.

(*c.*) A certificate from the head of the college that the candidate has passed the required examination.*

4. All candidates will be inspected by a Medical Board; and no candidate will be considered eligible for a commission in the Army unless certified by the Board to be free from any bodily defects or ailments, and in all respects, as to height and physical qualities, fit for Her Majesty's Service. Cases of exceptional shortness of stature will be referred to the War Office for special consideration. Any candidate unfavourably reported upon on physical grounds will only be allowed to proceed with the literary examination upon the distinct understanding that, if successful in the competition, he will be subjected to further inspection by a Special Medical Board, and will forfeit all advantage to which his position on the list would otherwise have entitled him, unless pronounced to be physically fit in all respects for military service.

5. Notice will be given from time to time of the number of commissions which will be allotted half-yearly to the University candidates. In case there should be more candidates than vacancies, the required number will be selected by competition among the said candidates at the ensuing July or December examination for entrance to the Royal Military College, in accordance with paragraph 6, provided they shall have qualified in the elements of geometrical drawing, including the construction of scales and the use of simple mathematical instruments. Candidates who defer their examination in geometrical drawing until the competitive examination will be disqualified should they fail in that subject, and the examination will count as one of the trials allowed.

Literary Qualifications.

6. The examination specified in paragraph 5 will be held half-yearly, and will commence on the last Wednesday in June and on the last Wednesday in November.

The subjects of the examination† and the maximum number of marks obtainable for each subject will be as follows:—

Class I. (Obligatory.)

	Marks
(1.) Mathematics.—Algebra, up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I. to IV. and VI.; plane trigonometry, up to and including solution of triangles, and mensuration	2,500
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000

Class II. (Any two subjects may be taken up.)

(1.) Higher mathematics.—(In all the following subjects great importance will be attached to accuracy in numerical results)—	
Further questions and problems on the subjects of the obligatory examination	
Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required	2,000
Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions and work. (Analytical methods of solution, but not the use of the differential calculus, will be involved)	
Analytical Geometry: Problems on straight line and circle	
Conic Sections: Elementary properties with easy problems both on analytical and geometrical methods	

* A candidate who intends to offer himself for this examination will be allowed to enter his name provisionally, on the understanding that the necessary certificate is forwarded to the Military Secretary before the commencement of the examination.

† *See* Syllabus issued by the Civil Service Commissioners.

	Marks.
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English History. There will be set: one general paper; one limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physical Geography and Geology: chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical.

CLASS III. (All three subjects may be taken up.)

(1.) English composition, tested by the power of writing an essay or letter .	500
(2.) Drawing, freehand	500
(3.) Drawing, geometrical	1,000

7. A candidate who may have been unsuccessful at his first examination will be allowed a second opportunity of competing, provided he has not exceeded the limits of age mentioned in paragraph 2.

8. When a candidate who has once been admitted to the further examination applies to be examined again, he will only be required to forward a certificate as to his moral character for the interval between the two examinations.

MILITARY QUALIFICATIONS.

9. Every successful candidate must, unless he already holds a commission in the Militia or Volunteer Force, be attached as a supernumerary Officer to one or other of those Services for the purposes of learning his drill, and will also be required—

(*a*.) To attend a school of instruction, and obtain the certificate of proficiency (Army Form E 511).

(*b*.) To qualify in the military subjects at the examinations for Army commissions held for Militia Officers in March and September. The number of trials allowed for this examination will not exceed two, and the second trial must not be later than the third military examination of Militia Officers after the candidate passes the literary examination.

10. To obtain the certificate mentioned in paragraph 9 (*a*), candidates will be required to remain under instruction for not less than one calendar month. They will be allowed to remain at the school for a further period not exceeding one month, if the requirements of the Service permit.

The stations at which candidates can attend schools of instruction are London, Aldershot and Dublin.

An application to attend a school of instruction must be made through the Officer Commanding the corps to which the candidate belongs or is attached.

11. The examinations of candidates from the Militia for Army commissions will be held twice a-year, in the months of March and September, at the several stations named below. Due notice will be given of the days on which the examinations will be held.

Portsmouth.
York.
Dublin.
London.
Aldershot.

12. The application of a University candidate to be admitted to the examination will be submitted through the Officer Commanding the regiment to which he belongs or is attached, who will be required to state whether he can recommend the Officer as a fit and proper person for a commission in the Army, and to certify that he has performed his duties whilst under his command in a thoroughly satisfactory manner, and that there is nothing against his character. In the event of the Officer Commanding the regiment being unable to recommend the candidate, the special reasons will be stated.

Candidates should state in their applications whether they are candidates for Cavalry or Infantry.

13. The applications must be forwarded direct by the Officer Commanding to the Military Secretary, Horse Guards, War Office, before the 15th January and 15th July respectively, after which dates no application will be entertained. Applications should be accompanied by the candidate's address, and an intimation stating at which of the stations named in paragraph 11 he wishes to attend for examination.

14. After the receipt of the application, instructions will be issued in due course to the candidate as to the place and time at which he will be required to present himself for the examination. After these instructions have been issued no change in the station for examination will be permitted.

15. Unsuccessful candidates who wish to be examined a second time must apply for permission, stating any change in their address, or in the station at which they wish to be examined.

16. The subjects of the military examination, and the maximum marks obtainable in each subject will be as follows:—

	Marks.
1. Fortification	600
2. Military topography	600
3. The elements of tactics	600
4. Military law	600

17. A candidate will be required to obtain ·25 of the marks in each subject, and ·5 of the aggregate.

18. The scope will be that embraced by the synopsis of the course of instruction (in the subjects specified in paragraph 16) at the Royal Military College. There will, however, be no practical out-of-door examination in any subject. The text books will be those in use at the time at the Royal Military College.

APPENDIX II.

REGULATIONS respecting Examinations, &c., for Admission to Royal Military Academy and Royal Military College, and for Direct Commissions offered to Militia Officers and University Candidates, in force subsequent to the date of the abolition of the "Preliminary" Examination.

A.

REGULATIONS respecting Admission to the Royal Military College, Sandhurst

(*These Regulations will come into force on the 1st January*, 1894.)

I.—THE ROYAL MILITARY COLLEGE.

1. The Royal Military College is maintained for the purpose of affording a special military education to candidates for commissions in the Cavalry and Infantry. Candidates must, in the opinion of the Commander-in-Chief, be in all respects suitable to hold commissions in the Army. Any further information required may be obtained on application to the Military Secretary, Horse Guards, War Office, S.W.

II.— REGULATIONS FOR ADMISSION.

General Instructions.

2. Admission to the Royal Military College as cadets will be granted—

(*a.*) To successful candidates at a competitive examination.

(*b.*) To Queen's Cadets, Honorary Queen's Cadets, Indian cadets, and Pages of Honour; subject to a qualifying examination.

3. The number of cadets admitted to the College will vary according to the requirements of the Service, and notice will be given from time to time of the number of vacancies open to competition. Such notice will usually be published about three months before the examination.

4. The dates of admission will be the 10th February and 1st September in each year, or the Tuesday following if either of those dates falls on a Sunday or Monday.

5. The examination of candidates for admission to the College will be conducted by the Civil Service Commissioners as hereinafter specified. The examinations will be held in London, and at such other centres as the Commissioners may appoint. The fee for the examination in London will be 2*l.*,* and at any other centre, 3*l.**

6. The number of trials allowed will not exceed three.

7. The successful candidates will be inspected by a Medical Board; and no candidate will be considered eligible for admission to the College unless certified by the Board to be free from any bodily defects or ailments, and in all respects physically fit for Her Majesty's Service.

No candidate will be admitted to the College unless certified by the Medical Board to be in all respects as to height and chest measurement fit for Her Majesty's Service, except where the Board, having regard to the candidate's age and physique, expressly state that they are of opinion that there is every reasonable probability of his fulfilling the requirements of the Service in the particulars referred to, at the time of his completing his course of instruction and qualifying for a commission. The admission of such candidate to the College will only be allowed on the understanding that he will not be granted a commission if he fails to attain the standard of height and chest measurement which may be in force at the time of the entrance examination.†

The decision of the Board will, in all cases, be absolutely final.

8. The limits of age for admission to the College will be from 17 to 19.

Competitors who desire to obtain commissions in the West India Regiment may be admitted up to the age of 22 till July, 1894; and up to that of 21 after July, 1894.

Candidates must be within the above limits of age on the 1st July for the summer examination, and the 1st December for the winter examination.

III.—Examinations.

9. The examinations will be held half-yearly and will commence in June and November; due notice will be given of the dates of the examination, and every candidate for those examinations must send to the Military Secretary on a date not later than the 15th May or 15th October respectively, an application in his own handwriting for permission to attend the examination. Candidates will be supplied with a form of particulars, which should be carefully filled up and signed, and returned without delay to the Military Secretary, accompanied by the following papers:—

(*a.*) An extract from the register of his birth; or in default a declaration made by one of his parents or guardians before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application; or some other satisfactory proof of good moral character.

(*c.*) If the candidate holds a commission in the Militia, a recommendation from the Commanding Officer of the regiment.

When a candidate applies to be examined again, he will only be required to forward a certificate as to his moral charaeter for the interval between the two examinations.

10. The subjects of the examination,‡ and the maximum number of marks obtainable for each subject will be as follows:—

Class I.

	Marks.
(1.) Mathematics—	
(*a.*) Arithmetic, including vulgar and decimal fractions, proportion and simple interest	3,000
(*b.*) Algebra, up to and including the binomial theorem; the theory and use of logarithms	
(*c.*) Euclid, Books I. to IV. and VI.	
(*d.*) Plane trigonometry, up to and including solution of triangles, and mensuration	

* In the case of candidates who have passed the preliminary examination, these amounts will be 1*l.* and 2*l.* respectively.

† The present minimum standard for Officers, for regiments of the Line, is 5 feet 4 inches height, and 33 inches chest measurement.

‡ *See* Syllabus issued by the Civil Service Commissioners.

	Marks.
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000
(4.) English composition, including spelling and handwriting	1,000
(5.) Drawing, geometrical	1,000

Candidates who have not, previously to 1st January, 1894, passed the Army Preliminary* or other examinations which have hitherto been accepted as equivalent thereto, will be required to qualify in arithmetic, and must also obtain such an aggregate of marks in the subjects in Class I. as may satisfy the Civil Service Commissioners.

Class II.

	Marks.
(1.) Higher mathematics. (In all the following subjects great importance will be attached to accuracy in numerical results) :— Further questions and problems on the subjects of the obligatory examination .. .. Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. (No application of the differential calculus to statics will be required) .. .. .. Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions, and work. (Analytical methods of solution, but not the use of the differential calculus, will be involved) .. .. Analytical geometry: Problems on straight line and circle .. .. Conic sections: Elementary properties, with easy problems both on the analytical and geometrical methods	2,000
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry: Elements of inorganic chemistry	2,000
(6.) Physics: Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physiography and geology	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical. Only two of the subjects in Class II. can be taken up.

Class III.

	Marks.
(1.) Geography	500
(2.) Drawing, freehand	500

Both these subjects may be taken up.

11. The number of marks allowed to each candidate in the several subjects in which he has been examined will be summed up, and the resulting total will determine the place of the candidate in the competitive list—the successful candidates being those who stand at the head of the list up to the number of cadetships competed for.

IV.—Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour.

12. (*a.*) Queen's Cadets will be appointed by the Secretary of State for War, on the recommendation of the Commander-in-Chief or First Lord of the Admiralty, from sons of Officers of the Army, Royal Navy, Royal Marines, and permanent Colonial military forces or irregular troops when acting with or in support of the Regular Forces in the field, who have fallen in action or have died of wounds received in action, or of disease contracted on service abroad, and who have left their families in reduced circumstances. Queen's Cadets will be granted an educational allowance of 40*l.* a-year, tenable between the ages of 13 and 17.

* Candidates who have failed to pass the Army preliminary, but have passed in three or more subjects, including elementary mathematics, will not be required to qualify in arithmetic in the competitive examination.

(*b.*) Candidates who, on account of their age, are unable to receive the educational allowance, though eligible in other respects to be nominated to and examined for Queen's cadetships, will (after passing the necessary qualifying examination) be entitled to a free course of instruction at the Royal Military College.

13. Honorary Queen's Cadets will be appointed from—

(*a.*) The sons of Officers of the British Army, Indian Army, Royal Navy, or Royal Marines, who were killed in action, or who have died of wounds received in action within six months of such wounds having been received, or from illness brought on by fatigue, privation, or exposure incident to active operations in the field before an enemy within six months after their having been first certified to be ill.

(*b.*) The sons of Officers of the British Army and of the Indian Army who have attained the brevet or substantive rank of Major, and have performed long or distinguished service, provided that their sons are (on account of such service) recommended by the Commander-in-Chief, with the approval of the Secretary of State, and that the special grounds for the recommendation be set forth in each case. The number so appointed of sons of Officers of the British Army will not exceed ten, and that of sons of Officers of the Indian Army will not exceed three, in any one year.

An Honorary Queen's cadetship will not carry with it any pecuniary advantage, and no declaration as to the circumstances of the deceased Officer's family is required.

14. Applications for Queen's cadetships and Honorary Queen's cadetships, except as in paragraph 15, should be addressed to the Military Secretary if the candidate is the son of an Officer of the Army, or to the Secretary of the Admiralty if the candidate is the son of an Officer of the Royal Navy or Royal Marines.

15. Indian cadets will be nominated by the Secretary of State for India in Council, under the provisions of 21 and 22 Vict., c. 106, and 23 and 24 Vict., c. 100, from sons of persons who have served in India in the Military or Civil Service of Her Majesty, or of the East India Company. Applications for Indian cadetships, and for Honorary Queen's cadetships for the sons of Officers of the Indian Army, should be addressed to the Military Secretary, India Office.

16. Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour, when ready for examination, will apply in the manner directed by paragraph 9.

17. Queen's Cadets, Honorary Queen's Cadets, Indian Cadets, and Pages of Honour will be required, before admission to the College, to pass a qualifying entrance examination only. They must attend the examination referred to in paragraph 10, and (in addition to the requirements therein mentioned) must obtain such an aggregate of marks in Classes I., II., and III. together as may indicate, in the judgment of the Civil Service Commissioners, a competent amount of general proficiency.

18. A Queen's Cadet, Honorary Queen's Cadet, Indian Cadet, or Page of Honour, who can produce a University certificate, as prescribed in paragraph 1 of the regulations under which commissions in the Army may be obtained by University candidates, will, except as regards the examination in geometrical drawing, be exempted from the qualifying entrance examination described in paragraph 17.

V.—Terms of Payment.

19. The terms of payment for cadets are regulated by the following articles of the Royal Warrant for Pay, &c.:—

483. The amount to he contributed on behalf of a cadet at Our Royal Military Academy, or Our Royal Military College, shall depend on the position held by his father (whether living or deceased) as an Officer of Our Regular Forces; of the Permanent Staff of Our Militia, Yeomanry or Volunteers; of Our Departments as laid down in Articles 263 to 268; of Our Navy; of Our Indian Military or Naval Forces; or of Our Colonial Forces if permanently and exclusively employed with a regularly enrolled regiment.

484. The amount referred to in Article 483 shall be payable half-yearly in advance at the following rates:—

For the son of—	Yearly. £
(*a.*) An Officer on the Active List below the Substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel in the Army, and Captain or Commander in the Navy	40
A retired Officer who last served in a rank below the above rank, and retired with not less than 20 years' service; or on account of age or non-employment; or on account of ill-health caused by the Service; or on reduction of establishment	
An Instructor of the Staff College, Royal Military Academy, or Royal Military College	

	Yearly. £
(*b.*) An Officer on the Active List with the substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel or Colonel in the Army; or a Captain or Commander in the Navy .. .. A retired Officer who last served in the above rank, and retired as stated in paragraph (*a*) .. .. A Professor at the Staff College, Royal Military Academy, or Royal College	60
(*c.*) A Major-General or Lieutenant-General .. .. A Vice-Admiral or Rear-Admiral	70
(*d.*) A General .. .. An Admiral	80
(*e.*) A private gentleman .. .. An Officer retired from Our Army or Navy, and not coming under any of the previous categories	150
(*f.*) For a Queen's Cadet	Nil.
(*g.*) For an Indian cadet. By special arrangement with the India Office. This applies only to the Royal Military College	
(*h.*) For the son of an Officer who has died on full pay, half pay, or retired pay or pension, and whose family has been left in pecuniary distress (subject to the approval of Our Secretary of State)	20
(*i.*) For the sons of all other deceased Officers, of whatever rank, whose widows are, or would have been, if living, eligible for pension ..	40

485. If the father of a cadet be promoted, or retire, the rate of contribution shall be altered accordingly.

486. If a cadet be absent a whole term in consequence of rustication, a payment of 10*l.* shall be required for the privilege of his name being kept on the rolls of the establishment, and for a vacancy being kept open at the commencement of the next term; except in the case of an orphan whose annual contribution is only 20*l.*, when the amounts to be paid under such circumstances shall be determined by Our Secretary of State.

487. Pay at 3*s.* a-day shall be credited to a cadet to cover the expenses of regimental clothing, messing, washing, and other contingencies. All other necessary expenses which cannot be covered by his pay shall be chargeable to his parent or guardian, in addition to the regulated contribution.

488. If a cadet be absent from sickness during a portion of the term, his pay shall continue to be issued and credited to his account; but no refund of the contribution shall be permitted except under the special authority of Our Secretary of State, and if such authority be given, the pay for the period of such refund shall cease.

489. If a cadet be rusticated or removed during a term, his daily pay shall cease from the date of such rustication or removal, and the contribution made for the half year shall be forfeited.

20. Each cadet, other than a Queen's or Indian cadet, on first joining will be required to pay, in addition to the regulated contribution, a sum of 25*l.* towards covering the expense of uniform, books, &c., and to bring with him the articles of clothing of which he will receive notice, and which must afterwards be kept up at his own expense. He will also be required to pay the regulated contribution in advance, for each half year of the time during which he remains under instruction; and a deposit of 5*l.* on account of contingent expenses, which latter sum he will be required to make up on returning to the Royal Military College after each vacation, towards covering any expense that may be incurred on his account during the ensuing half-year.

B.

Regulations respecting Admission to the Royal Military Academy, Woolwich

(These Regulations will come into force on the 1st January, 1894.)

I.—The Royal Military Academy.

1. The Royal Military Academy is maintained for the purpose of affording a special military education to candidates for commissions in the Royal Artillery and Royal Engineers. Candidates must, in the opinion of the Commander-in-Chief, be in all respects suitable to hold a commission in the Army. Any further information required may be obtained on application to the Military Secretary, Horse Guards, War Office, S.W.

II.—Regulations for Admission.

General Instructions.

2. Admission to the Royal Military Academy as cadets will be granted to the successful candidates at an open competitive examination.

3. The number of cadets admitted to the Academy will vary according to the requirements of the Service, and notice will be given from time to time of the number of vacancies open to competition. Such notice will usually be published about three months before the examination.

4. The dates of admission will be on the Thursday of the week in which the 17th March or 24th September falls each year.

5. The examinations of candidates for admission to the Academy will be conducted by the Civil Service Commissioners as hereinafter specified. The examinations will be held in London, and at such other centres as the Commissioners may appoint. The fee for the examination in London will be 2*l.*; at any other centre, 3*l.**

6. The number of trials allowed will not exeed three.

7. The successful candidates will be inspected by a Medical Board; and no candidate will be considered eligible for admission to the Academy unless certified by the Board to be free from any bodily defects or ailments, and in all respects physically fit for Her Majesty's Service.

No candidate will be admitted to the Academy unless certified by the Medical Board to be in all respects as to height and chest measurement fit for Her Majesty's Service, except where the Board, having regard to the candidate's age and physique, expressly state that they are of opinion that there is every reasonable probability of his fulfilling the requirements of the Service in the particulars referred to at the time of his completing his course of instruction and qualifying for a commission. The admission of such candidate to the Acadamy will only be allowed on the understanding that he will not be granted a commission if he fails to attain the standard of height and chest measurement which may be in force at the time of the entrance examination.†

The decision of the Board will in all cases be absolutely final.

8. The limits of age for admission to the Academy will be from 16 to 18. Candidates must be within those limits of age on the 1st of July for the summer examination and on the 1st of December for the winter examination.

III.—Examinations.

9. The examinations will be held half-yearly, and will commence in June and November; due notice will be given of the dates of the examination, and every candidate for those examinations must send to the Military Secretary, on a date not later than the 15th May or 15th October respectively, an application in his own handwriting for permission to attend the examination. Candidates will be supplied with a "Form of Particulars," which should be carefully filled up and signed, and returned without delay to the Military Secretary, accompanied by the following papers:—

(*a.*) An extract from the register of his birth; or in default a declaration made by one of his parents or guardians, before a magistrate, giving his exact age A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application, or some other satisfactory proof of good moral character.

(*c.*) If the candidate holds a commission in the Militia, a recommendation from the Commanding Officer of the regiment.

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* In the case of candidates who have passed the preliminary examination, these amounts will be 1*l.* and 2*l.* respectively.

† The present minimum standard for Officers is 5 feet 4 inches height, and 33 inches chest measurement.

When a candidate applies to be examined again, he will only be required to forward a certificate as to his moral character for the interval between the two examinations.

10. The subjects of the examination,* and the maximum number of marks obtainable for each subject, will be as follows:—

Class I.

	Marks.
(1.) Mathematics—	
(*a.*) Arithmetic, including vulgar and decimal fractions, proportion, and simple interest	3,500
(*b.*) Algebra, up to and including the binomial theorem; the theory and use of logarithms	
(*c.*) Euclid, Books I. to IV., and VI.	
(*d.*) Plane trigonometry, up to and including solution of triangles, and mensuration	
(*e.*) Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers	
Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. (Analytical methods of solution will not be required)	
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000
(4.) English composition, including spelling and handwriting	1,000
(5.) Drawing, geometrical	1,000

Candidates will be required to show a satisfactory knowledge of each of the above-mentioned branches of mathematics. and must also obtain such an aggregate of marks in the subjects of Class I. as may satisfy the Civil Service Commissioners. Candidates who have previously to 1st January, 1894, passed the Army preliminary,† or any other of the examinations which have hitherto been accepted as equivalent thereto, will not be rejected for failing to qualify in arithmetic, or to obtain the aggregate required in Class I.

Class II.

	Marks.
(1.) Higher mathematics—(In all the following subjects great importance will be attached to accuracy in numerical results):—	2,000
Further questions and problems on the subjects of the obligatory examination	
Statics: Problems and exercises will be extended to friction. (The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required)	
Dynamics: Problems and exercises will be extended to collisions and work. (Analytical methods of solution, but not the use of the differential calculus will be involved)	
Analytical geometry—Problems on straight line and circle	
Conic Sections: Elementary properties, with easy problems both on the analytical and geometrical methods.	
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which hotice will be given	2,000
(5.) Chemistry: Elements of inorganic chemistry	2,000
(6.) Physics: Elementary properties of electricity. magnetism, heat, light, and sound	2,000
(7.) Physiography and geology	2,000

In each of the subjects (5), (6), and (7), the examination will be partly practical. Only two of the subjects in Class II. can be taken up.

Class III.

	Marks.
(1.) Geography	500
(2.) Drawing, freehand	500

Both these subjects may be taken up.

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* *See* Syllabus issued by the Civil Service Commissioners.

† Candidates who have failed to pass the Army preliminary, but have passed in three or more subjects, including elementary mathemetics, will not be required to qualify in arithmetic in the competitive examination.

11. The number of marks allowed to each candidate in the several subjects in which he has been examined will be summed up, and the resulting total will determine the place of the candidate in the competitive list; the successful candidates being those who stand at the head of the list up to the number of cadetships competed for.

IV.—Terms of Payment.

12. The terms of payment for cadets are regulated by the following articles of the Royal Warrant for Pay, &c.:—

483. The amount to be contributed on behalf of a cadet at Our Royal Military Academy, or Our Royal Military College, shall depend on the position held by his father (whether living or deceased), as an Officer of Our Regular Forces; of the Permanent Staff of Our Militia, Yeomanry, or Volunteers; of Our Departments as laid down in Articles 263 and 268; of Our Navy; of Our Indian Military or Naval Forces; or of Our Colonial Forces, if permanently and exclusively employed with a regularly enrolled regiment.

484. The amount referred to in Article 483 shall be payable half-yearly in advance at the following rates:—

For the son of—

	Yearly. £
(*a.*) An Officer on the Active List below the substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel in the Army, and Captain or Commander in the Navy	40
A retired Officer who last served in a rank below the above rank, and retired with not less than 20 years' service; or on account of age or non-employment; or on account of ill-health caused by the Service; or on reduction of establishment	
An Instructor of the Staff College, Royal Military Academy, or Royal Military College	
(*b.*) An Officer on the Active List with the substantive rank (as regards Combatant Officers) or the rank (as regards Departmental Officers) of Lieutenant-Colonel or Colonel in the Army; or a Captain or Commander in the Navy	60
A retired Officer who served in the above rank, and retired as stated in paragraph (*a*)	
A Professor at the Staff College, Royal Military Academy, or Royal Military College	
(*c.*) A Major-General or Lieutenant-General	70
A Vice-Admiral or Rear-Admiral	
(*d.*) A General	80
An Admiral	
(*e.*) A private gentleman	150
An Officer retired from Our Army or Navy, and not coming under any of the previous categories	
(*f.*) For a Queen's Cadet	Nil.
(*g.*) For an Indian cadet. By special arrangement with the India Office. This applies only to the Royal Military College.	
(*h.*) For the son of an Officer who has died on full pay, half pay, or retired pay or pension, and whose family has been left in pecuniary distress (subject to the approval of Our Secretary of State) ..	20
(*i.*) For the sons of all other deceased Officers, of whatever rank, whose widows are, or would have been, if living, eligible for pension ..	40

485. If the father of a cadet be promoted, or retire, the rate of contribution shall be altered accordingly.

486. If a cadet be absent a whole term in consequence of rustication, a payment of 10*l.* shall be required for the privilege of his name being kept on the rolls of the establishment, and for a vacancy being kept open at the commencement of the next term; except in the case of an orphan whose annual contribution is only 20*l.*, when the amounts to be paid under such circumstances shall be determined by Our Secretary of State.

487. Pay at 3*s.* a-day shall be credited to a cadet to cover the expenses of regimental clothing, messing, washing, and other contingencies. All other necessary expenses which cannot be covered by his pay shall be chargeable to his parent or guardian, in addition to the regulated contribution.

488. If a cadet be absent from sickness during a portion of the term his pay shall continue to be issued and credited to his account; but no refund of the contribution shall be permitted, except under the special authority of Our Secretary of State, and if such authority be given, the pay for the period of such refund shall cease.

489. If a cadet be rusticated or removed during a term, his daily pay shall cease from the date of such rustication or removal, and the contribution made for the half-year shall be forfeited.

13. Each cadet other than a Queen's Cadet, on first joining, will be required to pay, in addition to the regulated contribution, a sum of 25*l.* towards covering the expense of uniform, books, &c., and to bring with him the articles of clothing of which he will receive notice, and which must afterwards be kept up at his own expense. He will also be required to pay the regulated contribution, in advance, for each half-year of the time during which he remains under instruction; and a deposit of 5*l.* on account for contingent expenses, which latter sum he will be required to make up on returning to the Royal Military Academy after each vacation, towards covering any expense that may be incurred on his account during the ensuing half-year.

C.

REGULATIONS under which Commissions in the Army may be obtained by Officers of the Militia.

[N.B.—The words "Militia Unit" in these Regulations will be held to signify a battalion of Militia Infantry or its equivalent in the Militia Artillery or Engineers.]

1. Commissions in the Army will be granted to subalterns of Militia who are successful candidates at a competitive examination in military subjects, under the following conditions:—

2. A candidate must, in the opinion of the Commander-in-Chief, be in all respects suitable to hold a commission in the Army, and will be required—

(*a.*) To have served two annual trainings with the Militia unit to which he belongs, each training to be in a distinct year, and to have passed the examination and obtained the certificate, Army Form E 527, required of a subaltern officer before the end of the second training after his appointment.

(*b.*) To have completed a service of 15 months in the Militia unit to which he belongs, by the 15th January and 15th July for the March and September examinations respectively.

(*c.*) In the case of a candidate who is more than 22 years old, to have served three annual trainings with the Militia unit to which he belongs, and to have obtained the certificate referred to in (*a*) before the end of the third training.

3. A candidate for a commission in the Royal Artillery must be a subaltern of Militia Artillery who, in addition to the foregoing conditions, has passed the School of Instruction at Woolwich and obtained the *p.s.* certificate Army Form E 502.

4. A subaltern of Militia, who has been a Page of Honour, and has passed a qualifying literary examination or its equivalent, may, subject to the conditions stated in paragraphs 2 and 23, be granted a commission in the Army on qualifying as laid down in paragraph 19 in the military subjects detailed in paragraph 18.

LITERARY EXAMINATION.

[The revised regulations with regard to the literary examination will not come into force until after the examination in November, 1893.]

5. Subject to the exceptions stated in paragraph 8, a candidate must, before the date of applying to present himself for the competitive examination, have passed a literary examination.

These literary examinations will be held by the Civil Service Commissioners half-yearly, in April and November, and due notice will be given of the dates of examination. The examination will be held in London, and at such other centres as the Commissioners may appoint. The fee for examination in London will be 2*l.*,* at any other centre 3*l.**

* In the case of candidates who have passed the preliminary examination, these amounts will be 1*l.* and 2*l.* respectively.

6. A Militia subaltern officer who is desirous of attending a literary examination must apply to his Commanding Officer, at such date as will allow of the Commanding Officer forwarding the application to the Military Secretary, Horse Guards, War Office, S.W., not later than the 15th of February or 15th of October, for the April and November examinations respectively. The Commanding Officer in forwarding the application will certify that the candidate is, having regard to the maximum limit laid down in paragraph 11, eligible in point of age, and that he will be prepared, when necessary, to recommend him in the manner prescribed in paragraph 13, The address of the candidate must at the same time be notified. Not more than three trials at these examinations will be allowed.

7. The subjects of the literary examination,* and the maximum number of marks obtainable for each subject will be as follows:—

CLASS I.

	Marks.
(1.) Mathematics—	
(*a.*) Arithmetic, including vulgar and decimal fractions, proportion, and simple interest (*b.*) Algebra, up to and including the binomial theorem; the use of logarithms (*c.*) Euclid, Books I. to IV. and VI. (*d.*) Plane trigonometry, up to and including solution of triangles, and mensuration	3,000
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000
(4.) English composition, including spelling and handwriting	1,000
(5.) Drawing, geometrical	1,000

Candidates who, previously to 1st of January, 1894, have not passed the Army preliminary† or other examinations which have hitherto been accepted as equivalent thereto, will be required to qualify in arithmetic, and must also obtain such an aggregate of marks in the subjects of Class I. as may satisfy the Civil Service Commissioners.

CLASS II.

	Marks.
(1.) Higher mathematics—(In all the following subjects great importance will be attached to accuracy in numerical results)— Further questions and problems on the subjects in Class I. Statics: The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. (The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required) Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions and work. (Analytical methods of solution, but not the use of the differential calculus, will be involved) Analytical Geometry: Problems on straight line and circle Conic Sections: Elementary projectiles, with easy problems both on the analytical and geometrical methods	2,000
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physiography and geology	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical. Only two of the subjects in Class II. can be taken up.

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* *See* Syllabus issued by the Civil Service Commissioners.

† Candidates who have failed to pass the Army preliminary, but have passed in three or more subjects, including elementary mathematics, will not be required to qualify for arithmetic in the competitive examination.

CLASS III.

	Marks.
(1.) Geography	500
(2.) Drawing, freehand	500

Both these subjects may be taken up.

To pass this examination, a candidate must obtain such an aggregate of marks in Classes I., II., and III. as may indicate, in the judgment of the Civil Service Commissioners, a competent amount of general proficiency.

Candidates for commissions in the Royal Artillery will also be required to show a satisfactory knowledge of each of the branches of mathematics in Class I.

8. A candidate will be exempted from this literary examination if he has previously passed an examination before the Civil Service Commissioners in the same subjects. A candidate will also be exempted from examination, except in geometrical drawing, if he can produce a certificate from the proper University authority that he has passed either:—

(*a*.) The examination for the degree of B.A. or M.A. at one of the following Universities:—

Oxford,	St. Andrews,
Cambridge,	Glasgow,
Dublin,	Aberdeen,
Durham,	The Royal University, Ireland,
London,	Victoria University, Manchester,
Edinburgh,	

or (*b*) one of the following University examinations:—

Oxford	The "First Public Examination," or the "Preliminary Examination in Law and Natural Science."
Cambridge	One of the parts of the "General Examination," or Part I. of any "Tripos Examination." *
Dublin	The "Final Examination of the Senior Freshman year," or the "Final Examination of the School of Engineering."
Durham	The "First Year's Examinations."
London	The "First Examination" for the degrees of B.A., LL.B., B.Sc., or M.B.
Scotch Universities	The "Examination of Candidates for the Army."
The Royal University, Ireland ..	The "Second University Examination in Arts," or the "Second Professional Examination in Engineering."
Victoria University, Manchester ..	The "Intermediate Examination."

or (*c*) some other test which is accepted by the University as exempting from the above examinations.

9. Candidates for commissions in the Royal Artillery will be exempted from the examination in mathematics, Class I., of the "Literary" examination, if they can produce a certificate from the proper University authority of having passed one of the following examinations:—

Oxford.—Any class in the mathematical honours at first or second public examination.

Cambridge.—Any degree with mathematical honours, or the previous examination, including the additional subjects prescribed for candidates for honours.

Dublin.—Any honours in mathematics at the Trinity or Michaelmas Term examinations of junior freshmen, and any honours in mathematics at an examination of senior freshmen.

Royal University of Ireland.—Any honours in mathematics at a first or subsequent University examination.

10. A candidate producing a certificate under paragraph 8 will be required to attend the literary examination for the purpose of passing an examination in geometrical drawing; or he may, with the same view, be examined at the periodical tests for the Royal Military College.

* The "Previous Examination" will be accepted until the 31st December, 1894.

Competitive Examination in Military Subjects.

11. A candidate will be allowed to take part in the competitive examination, provided that he is recommended by his Commanding Officer, in the manner prescribed by paragraph 13, and is qualified under paragraphs 2 and 3 of these regulations; also that he is under the age of 22 on the 1st of January immediately preceding the competitive military examination which he may be allowed to attend.

Candidates who have completed three annual trainings will, if otherwise eligible, be admitted to the competitive examination, if under the age of 23 on the 1st of January immediately preceding the date of that examination.

12. Competitive examinations of candidates from the Militia for Army commissions will be held twice a year, in the months of March and September, before Boards of Officers appointed for the purpose at the several stations named below. Due notice will be given of the days on which the examinations will be held.

Aldershot.	Portsmouth.
Dublin.	York.
London.	

13. The application of a Militia Subaltern Officer to be admitted to the competitive examination will be submitted through the Commanding Officer, who will be required to state whether he can recommend the Officer as a fit and proper person for a commission in the Army, and to certify that he has performed his duties whilst in the Militia in a thoroughly satisfactory manner, and that there is nothing against his character. In forwarding the same, the Officer Commanding the Regimental or Militia Artillery District, or the Commanding Royal Engineer, and the General Officer Commanding the District will also, if they are able, state their opinion of the candidate. In the event of the Commanding Officer being unable to recommend the candidate, the special reasons will be stated.

14. Commanding Officers should ascertain before the dates fixed for sending in applications for the competitive examination whether there are any subalterns belonging to their corps who are desirous of competing.

15. The applications must be forwarded to the Military Secretary, Horse Guards, War Office, S.W., before the 15th January and 15th July respectively, after which dates no application will be entertained. Applications should be accompanied by—

(*a.*) A certificate of birth, or, in default, a declaration made by one of the candidate's parents or guardians before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is inserted therein.

(*b.*) A certificate of having served the required number of annual trainings with the Militia unit to which the candidate belongs, and of having completed a service of 15 months therein.

If the training of a Militia unit takes place too late in the year to allow of this certificate being forwarded before the 15th July, a provisional certificate should be sent by the Commanding Officer stating that the candidate will have completed the required number of trainings before the date fixed for holding the competition, and that the usual certificate will be furnished on completion of the training. In such case the full certificate must be forwarded immediately after the expiration of the training.

(*c.*) A certificate on Army Form E 527, showing also the date on which the finding of the Board which granted the certificate was approved.

(*d.*) A certificate from the Civil Service Commissioners that the candidate has passed the literary examination; or, failing that, a statement of the date on which the candidate passed the literary examination; or a University certificate, as prescribed in paragraph 8, together with a statement of the date on which the candidate qualified in geometrical drawing.

(*e.*) The candidate's address, and an intimation stating at which of the stations named in paragraph 12 he wishes to attend for examination.

16. After the receipt of the application and documents referred to in paragraph 15, instructions will be issued in due course to the candidate as to the place and time at which he will be required to present himself for the competitive examination. After these instructions have been issued no change in the station for examination will be permitted.

17. An unsuccessful candidate, who wishes to compete again, must apply through his Commanding Officer, who, if he recommends the candidate, will forward the application in accordance with terms of paragraph 13, stating also the number of trainings served by such candidate in the Militia unit to which he belongs. The address of the candidate and the station at which he wishes to be examined should also be stated. Subject to the ru as to age in paragraph 11, candidates will be allowed three trials.

18. The subjects of the competitive examination and the maximum marks obtainable in each subject will be as follows :—

	Marks.
1. Fortification	600
2. Military topography	600
3. The elements of tactics	600
4. Military law	600

19. In addition to obtaining a sufficiently high place in the order of merit, a candidate will be required to obtain the qualifying minimum of one-third of the marks in each subject, and half of the aggregate.

20. The scope will be that embraced by the synopsis of the course of instruction (in the subjects specified in paragraph 18) at the Royal Military College. There will, however, be no practical out-of-door examination in any subject. The text books will be those in use at the time at the Royal Military College.

21. The number of commissions to be allotted to the successful competitors at each of the half-yearly competitive examinations will vary according to the requirements of the Service. Notice of the number of vacancies open to competition will be published about three months before the examination.

22. The names of the successful competitors will be published in order of merit, and each competitor will be informed of his place on the list, and the marks obtained by him in each subject.

23. Successful candidates will be inspected by a Medical Board after the competitive examination ; and no candidate will be considered eligible for a commission unless certified by the Board to be physically fit in all respects for Her Majesty's Service.* The decision of the Board will, in all cases, be absolutely final.

24. The principle on which these commissions are offered being that of pure competition, it follows that candidates who from the position on the list are not successful in obtaining a commission, will not have any subsequent claim thereto without undergoing another competitive examination.

D.

Regulations under which Commissions in the Army may be obtained by University Candidates.

(*These Regulations will come into force on* 1*st January*, 1894.)

I.—General Instructions.

1. Commissions in the Army may be granted to graduates in Arts or any one who has passed the examination for the degree of B.A. or M.A. at one of the following Universities :—

Oxford,	St. Andrews.
Cambridge,	Glasgow,
Dublin,	Aberdeen,
Durham,	The Royal University, Ireland,
London,	Victoria University, Manchester,
Edinburgh,	

or to students who have passed the examination specified below at any of the following Universities, or any examination accepted in lieu thereof by the Universities or authorities concerned :—

Oxford	The "First Public Examination," or the "Preliminary Examination in Law and Natural Science."
Cambridge	One of the parts of the "General Examination," or Part I. of any "Tripos Examination."†
Dublin	The "Final Examination of the Senior Freshman year," or the "Final Examination of the School of Engineering."

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* The present minimum standard for Officers for regiments of the Line is 5 feet 4 inches height, and 33 inches chest measurement.

† The "previous examination" will be accepted till the end of 1894.

Durham	The "First Year's Examinations."
London	The "First Examination" for the degrees of B.A., LL.B., B.Sc., or M.B.
Scotch Universities	The "Examination of Candidates for the Army."
The Royal University, Ireland ..	The "Second University Examination in Arts," or the "Second Professional Examination in Engineering."
Victoria University, Manchester ..	The "Intermediate Examination."

2. Notice will be given, from time to time, of the number of commissions which will be allotted half-yearly to University candidates. In case there should be more candidates than vacancies, the required number will be selected by competition among the said candidates at the ensuing June or November examination for entrance to the Royal Military College, in accordance with paragraph 6. Should there be no competition, candidates will be required to qualify in geometrical drawing at one of these examinations. The examinations will be held in London and at such other centres as the Civil Service Commissioners may appoint. The fee for examination in London will be 2*l.*, at any other centre 3*l.*

3. The limits of age will be as follows:—

For students who have passed the examination specified in paragraph 1 ..	17–22
For graduates	17–23

These limits of age will be ruled by the 1st July for the summer, and by the 1st December for the winter examinations.

4. A graduate or student of one of the Universities spscified in paragraph 1, who is, in the opinion of the Commander-in-Chief, in all respects suitable to hold a commission in the Army, and who is desirous of becoming a candidate for a commission in the Army, must send to the Military Secretary, Horse Guards, War Office, S.W., on a date not later than the 15th May or 15th October respectively, an application in his own handwriting for permission to attend the examination. Candidates will be supplied with a "Form of Particulars," which should be carefully filled up and signed, and returned without delay to the Military Secretary, accompanied by the following papers:—

(*a.*) An extract from the register of his birth; or, in default, a declaration made by one of his parents or guardians before a magistrate, giving his exact age. A certificate of baptism cannot be accepted unless the date of birth is shown therein.

(*b.*) A certificate of good moral character, signed by the tutors or heads of the schools or colleges at which he has received his education for the four years immediately preceding the date of application, or some other satisfactory proof of good moral character.

(*c.*) A certificate from the head of the college that the candidate has passed the required University examination.*

(*d.*) If the candidate holds a commission in the Militia, a recommendation from the Commanding Officer of the regiment.

5. The successful candidates will be inspected by a medical board; and no candidate will be considered eligible for a commission in the Army unless certified by the board to be free from any bodily defects or ailments, and in all respects physically fit for Her Majesty's Service.

No candidate will be accepted unless certified by the medicul board to be in all respects as to height and chest measurement fit for Her Majesty's Service, except where the board (having regard to the candidate's age and physique) expressly state that they are of opinion that there is every reasonable probability of his fulfilling the requirements of the Service in the particulars referred to at the time of his passing the examination in military subjects. The acceptance of such candidate will only take place on the understanding that he will not be granted a commission if he fails to attain the standard of height and chest measurement† when he is again medically examined. (*See* paragraph 14.)

The decision of the board will, in all cases, be absolutely final.

II.—Literary Qualifications.

6. Due notice will be given of the dates on which the examinations specified in paragraph 2 will be held.

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* A candidate who intends to offer himself for this examination will be allowed to enter his name provisionally, on the understanding that the necessary certificate is forwarded to the Military Secretary before the commencement of the examination.

† The present minimum standard for Officers for regiments of the Line is 5 feet 4 inches height, and 33 inches chest measurement.

The subjects of the examination* and the maximum number of marks obtainable for each subject, will be as follows:—

CLASS I.

	Marks.
(1.) Mathematics—	
(*a.*) Arithmetic, including vulgar and decimal fractions, proportion, and simple interest	3,000
(*b.*) Algebra, up to and including the binomial theorem; the theory and use of logarithms	
(*c.*) Euclid, Books I. to IV. and 6	
(*d.*) Plane trigonometry, up to and including solution of triangles, and mensuration	
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000
(4.) English composition, including spelling and handwriting	1,000
(5.) Drawing, geometrical	1,000

In case of competition, candidates must obtain such an aggregate of marks in the subjects of Class I. as may satisfy the Civil Service Commissioners.

CLASS II.

(1.) Higher mathematics—(In all the following subjects great importance will be attached to accuracy in numerical results)—	2,000
Further questions and problems on the subjects of the obligatory examination	
Statics: The equilibrium of forces acting in one plane, and of parallel forces, the centre of gravity, the mechanical powers and friction. (The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to Statics will be required)	
Dynamics: Uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions and work. (Analytical methods of solution, but not the use of the differential calculus, will be involved)	
Analytical geometry: Problems on straight line and circle	
Conic Sections: Elementary properties, with easy problems both on the analytical and geometrical methods	
(2.) German or French, as alternating with subject (3) in Class I. (200 for colloquial)	2,000
(3.) Greek	2,000
(4.) English history. There will be set: one general paper; one limitd to a fixed period, of which notice will be given	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light and sound..	2,000
(7.) Physiography and geology	2,000

In each of the subjects (5), (6), and (7) the examination will be partly practical. Only two subjects in Class II. may be taken.

CLASS III.

(1.) Geography	500
(2.) Drawing, freehand	500

Both these subjects may be taken up.

7. A candidate who may have been unsuccessful at his first examination, will be allowed a second opportunity of competing, provided he has not exceeded the limits of age mentioned in paragraph 3.

8. When a candidate, who has once been admitted to the literary examination, applise to be examined again, he will only be required to forward a certificate as to his moral character for the interval between the two examinations.

III.—MILITARY QUALIFICATIONS.

9. Candidates will be required to qualify in the military subjects at the examinations for Army Commissions held for Militia Officers in March and September. The number of trials allowed for this examination will not exceed two, and the second trial must not be later than the third military examination of Militia Officers after the candidate passes the literary examination.

‡ *See* Syllabus issued by the Civil Service Commissioners.

They will also be required to attend a school of instruction, and obtain the certificate of proficiency (Army Form E 511).

10. To obtain the certificate mentioned in paragraph 9, candidates will be required to remain under instruction for not less than one calendar month. They will be allowed to remain at the school for a further period not exceeding one month if the requirements of the Service permit.

Candidates must, unless they already hold a commission in the Militia or Volunteer Force, be attached as a supernumerary Officer to one or other of those services for the purpose of learning their drill.

Candidates may attend schools of instruction at London and Aldershot; applications to be made through the Officer Commanding the corps to which the candidate belongs or is attached.

11. The examinations of candidates from the Militia for Army commissions will be held twice a-year, in the months of March and September, at the several stations named below. Due notice will be given of the days on which the examinations will be held.

Aldershot.	Dublin.
London.	Portsmouth.
York.	

12. The application of a University candidate to be admitted to this examination will be submitted through the Officer Commanding the regiment to which he belongs or is attached, who will be required to state whether he can recommend the Officer as a fit and proper person for a commission in the Army, and to certify that he has performed his duties whilst under his command in a thoroughly satisfactory manner, and that there is nothing against his character. In the event of the Officer Commanding the regiment being unable to recommend the candidate, the special reasons will be stated.

Candidates should state in their applications whether they are candidates for Cavalry or Infantry.

The applications must be forwarded direct by the Officer Commanding to the Military Secretary before the 15th January and 15th July respectively, after which dates no application will be entertained. Applications should be accompanied by the candidate's address, and an intimation stating at which of the stations named in paragraph 11 he wishes to attend for examination.

13. After the receipt of the application, instructions will be issued in due course to the candidate as to the place and time at which he will be required to present himself for the examination. After these instructions have been issued no change in the station for examination will be permitted.

14. Successful candidates will be again inspected by a medical board after the examination in military subjects; and no candidate will be considered eligible for a commission unless certified by the board to be physically fit in all respects for Her Majesty's Service.

15. Unsuccessful candidates who wish to be examined a second time must apply for permission, stating any change in their address, or in the station at which they wish to be examined.

16. The subjects of the military examination and the maximum marks obtainable in each subject will be as follows:—

	Marks.
1. Fortification	600
2. Military Topography	600
3. The Elements of Tactics	600
4. Military Law	600

A candidate will be required to obtain one-third of the marks in each subject, and half of the aggregate.

17. The scope of examination will be that embraced by the synopsis of the course of instruction (in the subjects specified in paragraph 16) at the Royal Military College. There will, however, be no practical out-of-door examination in any subject. The text books will be those in use at the time at the Royal Military College.

APPENDIX III.

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DEPUTATION—MILITARY EDUCATION

HOUSE OF COMMONS,
Friday, 24th March, 1893.

Mr. H. CAMPBELL-BANNERMAN.
Lord SANDHURST.
Mr. Wm. WOODALL.
Lieut.-General Sir W. O. LENNOX, K.C.B.
Lieut.-General R. GRANT, C.B.

Mr. G. D. FLEETWOOD WILSON, C.B.

Sir HENRY ROSCOE, Knt., M.P.
Sir B. SAMUELSON, Bart., M.P.
Professor R. C. JEBB, M.P.
Dr. J. PERCIVAL, Head Master, Rugby.
Rev. M. G. GLAZEBROOK, M.A., Head Master, Clifton.
Rev. H. A. JAMES, B.D., Head Master, Cheltenham.
Mr. W. A. SHENSTONE, F.I.C., Science Master, Clifton.

Sir H. Roscoe.—Sir John Lubbock and Lord Playfair would have been with us to-day, but other business prevents their attendance. This deputation wishes to bring to your notice the facts with regard to the science teaching in schools, preparatory to the examination for the Royal Military Academy at Woolwich. The present state of things is regarded by many of the head masters of schools as very unsatisfactory, because the system of marking at the Academy has the result of giving a very heavy bonus to those who enter in modern languages, and the effect of it all will be to make German a compulsory subject at the entrance examinations; that is shown very fully in the memorandum which I had the honour of giving you the other day. The present condition of things has of late had a tendency to discourage science teaching in schools; that was very strongly brought out in the statement we made to Mr. Stanhope, and it has latterly been accentuated, as will be seen by the details in the memorandum to which I have already referred. There are three alternatives by which a remedy could be found, and those alternatives you will also find set forth in the same memorandum. At the present moment the full force of the regulations is not felt in the public schools, they take time to get a footing, but when they do fully affect the curriculum of the schools, then the question will become a very serious one.

Mr. James.—I am not here as having any special interest in science, my lines are linguistic rather than scientific, but I have had some years' experience in schools from which very many boys come up to the Army, and my opinion is that the present system tells very unfairly against boys who have scientific abilities, because, whether they like it or not, they are being driven to read German rather than science. Just before coming away, the master of my science department had a letter from the father of his most promising pupil, saying, that his son must read German instead of science, and fathers are coming to insist upon that more and more every day. I am not here

as representing my own school solely, nor on the other hand do we represent a united opinion, many are adverse to our views, but we have practically a very strong backing among the head masters of public schools. This question, however, affects more particularly the smaller schools, in many of which science is well taught, but in many of them they have not a sufficiently strong staff to meet the altered condition of things. We have foreseen what was coming for a year or two, though many of the head masters would not believe it, and the tendency in the future will be for the present state of things to become more and more exaggerated. I do strongly hope that in making any change you will not detrimentally affect the interests of the linguistic boys, because I should be very sorry to see the handicap shifted on to them: what we should like to see is some arrangement under which both science and languages should have equally fair play. I am strongly against the introduction of more subjects into the entrance examinations, I think the addition of another subject would have a disastrous effect.

Mr. Campbell-Bannerman.—Do you think there are too many subjects already?

Mr. James.—No, I think not, I think it will do with those.

Mr. Glazebrook.—I have very little to say upon the question because most of the grounds of our argument are fully set out in the memorandum, which I personally heartily endorse. I should, however, like to defend the action of the schools in taking up this matter. It is really a school question, and you will see that that is the case if you look at the lists of successful candidates. The last list of which we have any particulars shows that four-fifths of the candidates came from the public schools, and only one-fifth from the private tutors, that is with regard to Woolwich, and furthermore the list shows that the first 16 places were all taken by boys from the public schools. The smaller public schools have not been able to compete very well, and I am afraid if they have to take up German they will be cut out of it altogether, though most of them have taken scholarships in science at the Universities, and most of them are fairly well equipped, one way or another, in the matter of science teachers. I do not say those schools are very methodical, or very complete, in their teachings, but a clever boy who took to science was able to do very well; but those schools cannot take up German easily, that means an increase of the staff which they can scarcely afford. You will see by this that we are speaking really more for the smaller schools than for the larger ones, but generally I may say there is no doubt this is a school question, because for several years the highest marks in science have always been obtained by public school boys. We think it is an Army question too, because it seems to us that the scientific branch of the Army ought not to be deficient in scientific knowledge, but it has become increasingly apparent that ignorance in that branch will result from the present system. We send a good many boys to Woolwich, and they say it is fatal to take up science because in the further examinations for the Engineers it is almost impossible for them to succeed, and therefore, they write to their friends and advise them not to take up science but to take up German, The number of boys studying science at Clifton is now about one-fourth what it was two years ago, and it threatens to disappear altogether. Another thing the boys say is this, they are put back into the 4th form when they get to Woolwich, because the science taught there is a farce, it is only such as our boys do in the lower part of the school, and the practical work, that is the chemistry, is not much better. The chemistry they do at Woolwich they ought to be doing at 15, that is due to the fact that a great many go there who have had no previous teaching.

Mr. Campbell-Bannerman.—Then I understand the advice given by the cadets is this: "Seeing that you have to be instructed in elementary chemistry, you had better leave that until you get to Woolwich and take German instead?"

Mr. Glazebrook.—Yes, because they get a bonus of 700 marks by taking up German.

Mr. Shenstone.—My experience leads me to fully endorse what has already been said. The advice we get from the old boys is that the science teaching at Woolwich is exceedingly easy, and it is not difficult to get the required maximum, but in regard to voluntary German it does require very hard work to get it up, and the result of the present regulations with regard to the voluntary language, is that German instead of being optional has become compulsory.

Sir B. Samuelson.—I am sure that everyone must be convinced that for the scientific branch of the Army science is a first necessity, and I am of opinion that every encouragement should be given to the public school education rather than to an amount of special education which boys receive from private tutors or crammers. On those grounds I consider that what is to the interest of the public schools is to the interest of the country at large, and also to the interest of the Army. I do not

think it would be desirable to do anything which would cause languages to be neglected, the German language especially, because, as times go now, that is a very important language for anyone entering the Army as a career. It might be worth while considering whether German might not be taken as an alternative for French. I do not think it is desirable that either languages or science should be handicapped, they are both of very great importance, and in some way provision should be made for both of them to receive the attention they deserve. If the state of things at Woolwich, in regard to science, is such as has been described, then there is not only the question of marks to be considered, but there is also the wider question of what is done at Woolwich.

Professor Jebb.—I quite agree with all that has been said upon the subject, and I think that the scientific study and the linguistic studies should be put on an equal footing in respect to these examinations, and it is from that point of view more especially that I take an interest in the object of this deputation.

Sir H. Roscoe.—I suppose there are a great many boys coming up to Woolwich from the smaller schools, did you send many up from Manchester?

Mr. Glazebrook.—No, they were too poor, but many go up from St. Paul's.

Sir H. Roscoe.—Looking at it as a question of £ *s. d.*, apart from the value of a school education over that of education by a crammer, if the studies for Woolwich in such schools as St. Paul's are discouraged it will be a matter of serious import, because it will mean that persons with small incomes will be unable to take advantage of these examinations.

Lieut.-General Lennox.—The question of languages at Woolwich is now being dealt with by a Committee which has been appointed to consider the subject.

Sir H. Roscoe.—One point seems to be this, you ought to try and get for the scientific branches of the Army men who have shown special scientific aptitude; I do not mean merely the knowledge picked up in school, I mean men who are able to pick up things of themselves—men with a faculty for observation. If you do not encourage science, if you get only the boys who have capacity for languages, it seems to me you will fail to get the class of persons you ought to have in the scientific branches of the Army.

Mr. Shenstone.—Two years ago the Academy at Edinburgh sent down a boy who in all branches of science got very high marks, but when he got to Woolwich he found himself so handicapped by not taking up German, that at the very last minute he was forced to take it up, and he just managed to get half marks in optional German; if he had got less marks he would have been out of the Engineers, in spite of his scientific knowledge. There is a cadet at Woolwich in just the same position now, and his parents are feeling very anxious about his chances.

Lieut.-General Grant.—I quite agree with what has been said about putting linguistic and scientific studies on the same footing, but I do not think we in the Army can too strongly emphasize the importance of German, and, therefore, I would deprecate any attempt to diminish the study of that language. A great deal of important information required by the Engineers is printed in the German language. With regard to science in the Engineers, I may say that we find a marked deficiency in the subject of electricity, and that is a branch of science which is absolutely necessary for an Engineer Officer, because it is always coming up in his work. In all the reports that I have seen, whether as Inspector-General of Fortifications, or as Deputy Adjutant-General of Engineers, it has been shown that the Officers coming to us from Woolwich are very deficient in their knowledge of electricity, and therefore if we can in any way improve the scientific teaching we shall do so. I think, from what I have heard, that it is not so much the marking as the education itself, that wants improving. I have brought to notice, officially, this want of scientific knowledge; I think more time should be given to it, and that could be done by deferring some of the military subjects, a knowledge of which an Officer gains when he has entered the Service. The Officers we get elsewhere than from Woolwich are far better than those who come from Woolwich, either with regard to science or with regard to general education. The Officers we get from the Military College of Canada are very good men indeed; it is true we get only one or two from there, so perhaps they are the best the College can produce.

Sir B. Samuelson.—I am very glad you have mentioned the deficiency in the knowledge of electricity, because, perhaps it will induce the head masters to consider whether their laboratories are as perfect at the present time as they ought to be.

Lieut.-General Grant.—Another subject I should like to call attention to, is what I may term, descriptive geometry. I have never known an Officer who was good in that subject who did not turn out a good Officer, but I have known many good mathematicians who did not turn out good Officers. An Engineer Officer is, first and foremost, a soldier, and though to him a knowledge of language is most essential, yet I do not think we ought to diminish the importance of a scientific knowledge, nor do we wish to handicap science in any way. If the smaller schools have not the capacity for teaching German, then we do not want the men they send up.

Sir H. Roscoe.—All we want is a fair field and no favour. The present system is acting very disadvantageously to the public schools in regard to science, and that is an important point to be considered in relation to Engineer Officers.

Mr. Campbell-Bannerman.—I am very glad that Sir Henry Roscoe has been able to arrange this meeting, and that we have had this friendly conversation by which I have been able to obtain your views upon this very important subject. I agree with all that has been said, and so far as I am concerned, I think we should do full justice to science from the point of view, not only of the public schools, but of the schools generally throughout the country. I agree that we ought to maintain the equipoise between the scientific and the linguistic branches, but I should be very sorry if any thing we did, or do, had the effect of lowering the education given in the public schools. I have sometimes had a suspicion that that has been the effect of some of the changes that have been made in the examinations, more especially as regards Sandhurst. There has sometimes seemed to me to be a tendency to meet what were supposed to be the weaknesses of the public schools. So far as I am concerned I would not consciously do anything of that sort, I would much rather, if I altered anything at all, do that which would increase the efforts of the public schools and raise the standards rather than lower them. You may rest assured that we are most alive to the importance of this question, and to the necessity of overcoming any mischief that may exist, even in an incipient stage, at the present time. We will look into the case in the light of what you have said, and we will endeavour to remove any evil that may exist.

Dr. Percival.—I agree with what is stated in the memoranda which have been sent you, and I believe that we are practically unanimous in the strong desire that the scientific candidates and the linguistic candidates should be on the same footing. That is the point from which we started, but now they are not on the same footing. Another feeling that many of us have is that we should like to see more opportunities given for advanced study at Woolwich, and I hope that it may be possible to arrange matters so that scientific candidates who go to Woolwich may pursue their studies instead of having to go over them again. I have a student at Woolwich, at the present time, who is going through the elementary part of the work, while as a matter of fact he is quite capable of teaching science himself, so that he is merely wasting his time. With regard to how some other things might be arranged, we are perhaps not all unanimous, but personally I have a preference for making both the elementary science and German compulsory on all Woolwich candidates at entrance. The candidates are generally boys of good ability, and there would be no difficulty in arranging a standard in science, German and French, which such boys could reach. If that were done the authorities at Woolwich would be free from elementary instruction in those subjects, and they could then devote themselves to the more advanced subjects. If that were done I think it would improve the education of military Officers, and it would also tend to keep us in the schools from specializing too much in one direction. It always seems to me that the school-boy time is the time for laying the foundations for either languages or science. I feel it a great loss if a boy goes out of the school without doing any science, because I think it is better for him to begin that in the school than at Woolwich.

Mr. Campbell-Bannerman.—Would you suggest multiplying the subjects for examination?

Dr. Percival.—I think when boys are at school you should not narrow the range too much, but when they come to Woolwich I think you should give them a choice so as to enable them to concentrate their time on special subjects.

Mr. James.—I presume that any changes you may decide to make will be communicated to the public as soon as possible, so that we may make our preparations to meet them?

Mr. Campbell-Bannerman.—Yes, and I can assure you there will not be any unnecessary delay in coming to a decision upon the points in question.

[*The deputation having thanked Mr. Campbell-Bannerman for his courtesey, then withdrew.*]

MEMORANDUM REFERRED TO BY SEVERAL MEMBERS OF THE DEPUTATION.

March, 1893.

The position of Cadets at the Royal Military Academy, who have taken up Science at the Entrance Competition.

I.—About nine months since Sir Henry Roscoe and the Head Masters of Rugby, Cheltenham, Clifton, and possibly of other Schools, called the attention of the Secretary of State for War to this subject. Up to the present no action has been taken, except that the conditions have recently been made still more unfavourable to Cadets of the entic type, as will be shown in this Memorandum.

For some time past the course of instruction at Woolwich has occupied two years, which are divided into four terms. At the end of the *second term* the appointments in the *Engineers* are offered to the Cadets in order of merit, as indicated by the marks obtained in these two terms. The scale of marks being as follows:—

OBLIGATORY SUBJECTS.

(*To count marks in any of the Obligatory Subjects, 25 per cent. of the total must be obtained.*)

	Marks.
Mathematics	3,000
Fortification	2,000
Military Topography	2,000
Chemistry and Physics	1,000
Model Drawing	300
French or German	1,000

VOLUNTARY SUBJECTS.

German or French (counting minimum 50 per cent.)	1,000
Landscape Drawing (counting minimum 50 per cent.)	700
Higher Mathematics (counting minimum 40 per cent.)	800

For class promotion at the end of the first and second terms, Candidates are required to obtain 50 per cent. of the marks in Mathematics, and in at least three other Obligatory Subjects, and 50 per cent. of the aggregate.

This shows that a Cadet who had learnt no Science at School *might gain admission to the Engineers in spite of failing in Science at Woolwich*, provided that he is fairly good in the Voluntary Language. In short, it shows that Science is not really compulsory, either at School or afterwards.

II.—Experience of the working of this system has revealed the fact that though Science is nominally a compulsory subject at Woolwich, the minimum counting mark is so low that a beginner at Science must be very dull or very idle if he does not gain it, especially as the Science teaching at Woolwich is suitable for beginners, and as the Examinations are often of a very easy character.

On the other hand, the Voluntary Language, with a high minimum counting mark of 50 per cent.—and in the absence of any elementary teaching of the subject in the Woolwich Course—cannot be made to count in most cases, except by those who have made a good start before they go to Woolwich, or by those who spend much extra time and even money on it after they come there.

Hence *the Scientific Cadet has been almost driven either to abandon the hope of getting into the Engineers* or to devote time intended for physical exercise or repose to the acquirement of a second Language, and to incur the expense of foreign travel or private instruction for the same object, whilst the Cadet who has taken up two Modern Languages and no Science at Entrance has been able to do his work under much easier conditions. Of course two Modern Languages and Science is a possible combination at Entrance. But in that case Higher Mathematics cannot be offered, and so the Scientific Cadet is left at an equal disadvantage, because the value of Higher Mathematics is very great, and it helps the Cadets to take up the Voluntary Mathematics (marks 800) of the Royal Military Academy Course.

III.—That the Voluntary Language has really in effect been compulsory for those who desire admittance to the Royal Engineers is shown by such facts as the following:—

Twenty Cadets were admitted to the Engineers in the summer of 1892. Of these 18 offered the Voluntary Language. The average marks for this was more than 700 in the case of these 18 Cadets, and was equal on this occasion to eight places counting from the top or to 13 counting from the bottom.

The highest place secured by a Cadet who did not gain marks in the Voluntary Language was 11th. With 700 more marks he would have been 4th.

The 6th Candidate on the list of 20 would have been out of the Engineers had he not taken the Voluntary Language, and so with every Cadet below him, with two exceptions.

But this is not the worst—

Since representations were made to the authorities the conditions have been made far more unfavourable for Cadets who have entered the Royal Military Academy with Science and one Modern Language. Until lately by extra work in vacations and at other times the best of these Cadets have been able to succeed with the Voluntary Language, and to gain many places in the Royal Engineers.

A recent change will make this much more difficult if not well nigh impossible in future.

In the course of work at Woolwich four hours weekly have been given to the Obligatory Language and two hours to the Voluntary Language. Until very lately Cadets knowing only one language were allowed to take up for their Voluntary Language (two hours) in which 50 per cent. is the counting minimum mark, that which they took at the Entrance Examination and already knew in some degree, and to take for their Compulsory Language (four hours) in which the counting minimum is only 25 per cent., that with which they had little or no acquaintance.

This is no longer permitted, and Cadets who have entered with Science and one Modern Language are now compelled to give four hours to the Language they already know and are only allowed two hours for that which they have either not begun when they enter the Academy or in which they are very beginners.

It is understood that this change was intended to overcome certain difficulties at Woolwich, but it is clear that it is most unfair to the more Scientific Cadets. Its effect is to give those who took no Science at Entrance a bonus of many hundreds of marks in a competition in which even 100 marks often make a real difference, and hence it is calculated to keep out of the most scientific branch of the Army those who are specially fitted for that branch.*

As an instance of the manner in which this new practice will act we may consider the case of the first four successful Cadets at the Entrance Examination in the Summer of 1892. 1, 2, and 3 took up Science and a Modern Language; 4 took up two Modern Languages and no Science.

The new system will give practically a bonus of 700 marks, more or less, to No. 4, which the others can only make up for by learning a new Language within a brief and very busy period of about 10 months in their leisure hours. If they attempt this they will not lose as much as they gain by in some degree neglecting their other and compulsory studies. Whilst on the other hand the time allowed for Science will be amply sufficient to enable 3 to gain a fairly good mark in this subject.

Again, there is a Cadet now at the Royal Military Academy who took at Entrance two branches of Science, scoring marks which show him to possess remarkable ability in Science. He did well enough all round to gain a good place in the Examination, yet his prospects of gaining Engineers are enormously less than those of Cadets who at Entrance did only moderate work in two Modern Languages.

This new feature, by its tendency to keep Scientific Cadets out of the Royal Engineers, must very seriously discourage the Science work of Schools. It will create a pressure from parents which will compel schoolmasters frequently to send up boys with two Modern Languages and no Science for the Entrance Examination, even when they believe that a Science Subject would give the boy an equally good chance of gaining admission into Woolwich, and would be of far greater professional value to him afterwards.

IV.—It may be replied that up to the present the Examination Lists have not shown any falling off in the proportion of Candidates for Woolwich who offer Science. This, however, is due largely to the fact that there has been a feeling of uncertainty as to the permanence of the present Woolwich system, and partly to the fact that, as most Candidates select their subjects years before the actual competition, a change of policy in regard to the choice of subjects takes long to show itself.

The following facts will give an idea of what may be expected from a continuance of the present system. At Christmas, in 1890, there were 37 boys on the Army side of one of our great Public Schools doing Science. About this time Old Boys at Woolwich

* It is stated that this effect of the change has already shown itself in a very marked degree, and that in the list of selections for Engineers just published, out of 13 who could be traced there were 8 who had not taken Science at Entrance, and only 2 who had not taken German.

began to call attention to the nature of the Woolwich arrangements, with the result that (in spite of the great success with Science during this period at the Entrance Competitions) only nine boys were reading Science in the same department at Christmas, 1892. Meanwhile the Army side in question has not diminished in numbers.

The inevitable consequence of the present course of work at Woolwich has been admitted by many who have been consulted on the subject, by the Head Masters of several Public Schools, by a Teacher of Woolwich Cadets, by several men of Science of great eminence, by numerous Old Boys who have lately gone through the Woolwich Course, and have found the disadvantage of having studied Science (however successfully) at School rather than a second Modern Language, by many military parents, and by others who are interested in educational questions.

V.—There are various important reasons for calling attention to the present condition of affairs:—

1. The admitted advantage to Engineers of a prolonged course of Science study when it is begun at School, and continued at Woolwich, to which many old school boys now in the Army have borne witness. However good the Science teaching at Woolwich may be, it cannot, with the very limited time available, produce a good standard of Science work unless the Cadets come there with a good preliminary training. Science, like every other subject, *takes time* to learn.

2. Its unfairness to Candidates whose abilities lie in the direction of Science rather than of Language.

3. Its tendency to keep out of the specially Scientific branch of the Army the specially Scientific Candidates.

4. The extinction of Science, and its replacement by two Modern Languages in the Woolwich Entrance Examination, which appears to be imminent, will tend to drive boys away from Public Schools to Continental Tutors, and so to encourage the class of Cadets which we are told yields the least satisfactory Officers.*

5. The present system must soon make it impossible to teach Science to Army Candidates, and this must seriously discourage Science work at Schools; for the general work of Schools, and especially of their Modern sides, is now greatly influenced by the requirements of Special Departments, and in many Schools the Army sides have of late years become very important and influential.

Finally, it may be pointed out that any higher School of reasonable size can teach Science up to the standard required for the Woolwich Examination if it really desire to do so; and that only such Schools can usually provide the other special instruction required. Therefore the idea that many senior soldiers have long held, viz., that Science is a Crammer's subject and not a School subject, and that the encouragement of Science means the encouragement of the Crammer as against the Schools, has long since ceased to be true; in fact, the contrary is now rather the case.

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* In June, 1893, out of 50 Cadets 33 came direct from Schools, 6 from tutors, and 11 from unascertained places of education. The highest place credited to a tutor was 19th (*See* "Public School Year Book, 1892–93).

APPENDIX IV.

Returns showing the average number of Admissions made half-yearly to the Royal Military Academy and Royal Military College; the number of Commissions offered annually to University and Colonial candidates; and the number given to Militia Officers, and the Promotions from the Ranks in 1892–93.

Royal Military Academy, Woolwich.

The admissions half-yearly, at present, number 50; the course of instruction extending over 2 years.

Royal Military College, Sandhurst.

The admissions half-yearly, at present, number 120 (as nearly as possible); the course of instruction extending over 18 months.

University Candidates.

Eight appointments are at present offered half-yearly for competition among University candidates, who do not now proceed to Sandhurst.

Commissions Offered for Competition among Militia Officers.

Date of Examination.	Cavalry.	Royal Artillery.	Infantry.	Total.
March, 1893	15 (including 5 extra.)	2	42	59
September, 1893	15	2	42	59

Promotions from the Ranks.

In the year 1892–93, the promotions to 2nd Lieutenancies, from the ranks, numbered 14.

Appointments from the Colonies, &c.

With regard to the supply of candidates from colonial sources, the numbers of gentlemen appointed to Commissions varies considerably.

The College, at Kingston, Canada, annually supplies four candidates; one for Royal Engineers, one Royal Artillery, two Line.

The Colonial Local Forces supplied four candidates in 1889, one in 1890, one in 1891, four in 1892.

The rules under which Colonial University candidates do not proceed to Sandhurst have only lately come into operation, and no candidate has yet been appointed therefrom.

9th August, 1893.

APPENDIX V.

ROYAL MILITARY ACADEMY.

RETURN of the Schools at which the Cadets were educated who entered by open competition from March 1890 up to October, 1893.

School.	March, 1890.		September, 1890.		March, 1891.		September, 1891.		March, 1892.		September, 1892.		March, 1893.		September, 1893	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Bath College	..	..	1	..	..	..	1	..	3	1	1	..	1	..	1	..
„ the Hermitage School	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
„ Rev. Luckmann's Private School	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
„ St. Gregory's School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Bedford Grammar School	1	..	5	..	5	2	5	..	5	..	5	1	2	..	2	..
Berkhampstead School	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Boulogne-sur-Mer, Beaurepaire School	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
„ Cambridge House School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Bradfield College	..	..	..	..	..	..	..	..	1	1	1	..	1	..	1	..
Brighton College	..	..	1	..	1	..	1	..	1	1	..	..	1	..	..	..
„ Hereford House	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Bromsgrove School, Worcester	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Charterhouse School (*see* Godalming).																
Cheltenham College	4	..	1	..	2	..	3	1	7	2	3	1	7	..	2	..
„ Grammar School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ G. Schneider and J. Lane	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
County Clackmannan, Dollar Institution	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Clifton College	5	1	2	..	2	..	4	..	1	1	7	3	6	2	4	..
„ Mr. F. W. Reynolds	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
„ F. Townsend, Esq.	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Cowley, Oxford Military College	3	2	1	..	..	..	..	..	1	..	2	..	..	..	..	..
Dover College	1	..	2	..	1	..	1	..	..	..	..	..	..	..	1	1
„ Godwynshurst	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Dublin, Catholic University School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ High School, Harcourt Street	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ Leeson School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
„ Queen's Service Academy	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Dulwich College	1	..	..	..	..	..	1	..	..	..	..	..	..	..	3	2

Return of the Schools at which the Cadets were educated &c.—*continued.*

School.	March, 1890.		September, 1890.		March, 1891.		September, 1891.		March, 1892.		September, 1892.		March, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Eastbourne, Mr. Jas. Winder, Clifton House	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Edinburgh Academy	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
,, Daniel Stewart's College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
,, Fettes College	1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1
,, Merchiston Castle School	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..
,, Dr. Rankin, Falcon Hall	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Eltham, Mottingham House	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
,, Royal Naval School	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	..
Epsom College	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Eton College	2	1	1	..	1	..	1	1	..	..	2	1	2	..	2	2
Fareham, Stubbington House	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
Felstead School	1	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..
Fettes College (*see* Edinburgh).																
Fleetwood, Rossall	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Frankfort-on-Main, Public High School	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Freiburg, Baden, Colonel Roberts	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Giggleswick School	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Glasgow University	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Godalming Charterhouse School	3	1	3	2	2	1	2	1	1	..	4	2	2	1	4	1
Gosport, Royal Academy	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..
Guernsey, Elizabeth College	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Haileybury College	1	1	..	..	3	1	1	..	..	..	1	..	1	1	1	1
Hanover, A. Hodgson, Esq., M.A.	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Harrow School	1	1	2	..	2	1	4	2	2	1	1	..	3	2	2	..
Hastings Grammar School	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Heidelberg, Neuenheim College	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Highgate (*see* London).																
Honiton, Allhallow's School	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Inverness College	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ipswich School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Isle of Man, King William's College	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	..

Jersey, Victoria College	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	
King's College (*see* London).																	
Kingstown, Corrig School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	1	
Lancing College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	
Leicester, Wyggeston Boys' School..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	
Little Bookham, Surrey, Rev. T. W. Nixon ..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	
London, Shepherd's Bush, B. E. Anderson, Esq. (Private Tutor).	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
London, Blackheath, Mr. Winter, Connaught Military College.	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	
London, J. Hardie, Esq., 10, Holland Park Terrace	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	
,, Cholmley School, Highgate..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	
,, Highgate Grammar School..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
,, King's College	1	1	..	..	..	..	..	..	..	..	1	1	..	..	1	..	
,, Merchant Taylor's School	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	
,, St. Paul's School	1	..	4	1	2	2	4	2	4	2	1	..	6	1	3	1	
,, University College School	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	
,, Westminster School..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	2	
,, Messrs. Wren & Gurney	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	
Lucens, Messrs. Merreweather & Godfrey, Chalet de Lucens et Vaird, Switzerland.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Malvern College	..	..	..	..	2	1	1	..	..	..	3	..	1	1	1	..	
Marlborough College	5	2	1	1	5	4	2	..	2	2	1	..	2	2	2	..	
Merchant Taylor's School (*see* London).																	
Newton Abbot College	..	..	1	..	1	..	..	..	..	..	2	1	..	..	1	..	
Oxford Military College (*see* Cowley).																	
Paramè, Ille et Vilaine, La Redoute, D. J. Cowles, Esq. (Private Tutor).	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	
Paramè, Ille et Vilaine, G. A. Cowles, Esq.	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	
Plymouth, Mannamead School	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	
Poona, Bishop's High School..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	
Portsmouth Grammar School..	4	2	1	..	1	..	2	..	1	..	..	..	1	..	3	1	
Radley College..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	
Ramsgate, South-Eastern College	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Repton School	1	1	1	..	..	..	1	..	..	..	..	..	2	..	..	..	
Rochester, King's School	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Rossall School (*see* Fleetwood).																	
Rugby School	1	..	1	..	..	..	1	..	2	..	1	..	2	..	1	..	
Ryde, Isle of Wight College..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	
St. Paul's School (*see* London).																	
Sedbergh School, Yorkshire	..	..	1	..	2	..	..	..	..	..	..	..	1	..	..	..	

Return of the Schools at which the Cadets were educated, &c.—*continued.*

School.	March, 1890.		September, 1890.		March, 1891.		September, 1891.		March, 1892.		September, 1892.		March, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Shrewsbury School	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..
Sittingbourne, Borden School	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Southsea, Hope House School	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
„ St. Helen's College	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..	..
Stratford-on-Avon, Trinity College School	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
Sutton Valence Grammar School	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Tiverton, Blundell's School	..	..	..	..	1	..	..	..	..	..	2	..	..	..	1	..
Tonbridge Grammar School	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..
Tooting, W. Griffith and W. Lupton	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Trent College, Nottinghamshire	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Uppingham School	1	1	..	..	..	..	..	..	..	..	1	1	..	..	1	1
Warminster Grammar School	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Watford, Wynyard House, Rev. R. Capron	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Wellington, Old Hall School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Westminster School (*see* London).																
Westward Ho!, United Service College	2	1	2	1	2	1	..	..	2	2	1	..	1	..	1	..
Weymouth College	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Wimbledon, Mr. Bilderbeck	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
„ School, Messrs. Keiser & Turle	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1
Winchester College	1	1	2	..	..	..	2	..	1	..	1	..	2	..	..	..
Windsor, Beaumont College	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Wellington College	4	1	9	2	..	..	5	2	5	..	2	1	1	1	1	..
Home Tuition	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
F. W. Lardner, Esq., and J. Martin, Esq. (Private Tutors).	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Total	60	21	60	15	61	25	60	20	50	18	50	14	50	12	50	19

J. M. MURRAY, *Colonel,*
Acting Commandant, R.M.A.

APPENDIX VI.

ROYAL MILITARY COLLEGE.

RETURN of Schools at which the Cadets who entered by Open Competition were educated, February, 1890—September, 1893.

School, &c.	February, 1890.		September, 1890.		February, 1891.		September, 1891.		February, 1892.		September, 1892.		February, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Aberdeen University	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Cambridge „	1	..	5	3	3	2	..	..	1	1	..	..	..	..	..	..
Dublin „	1	1	1	1	1	1	1	1	..	..	..	..	..	..	..	..
Edinburgh „	1	1	1	..	1	1	..	..	..	..	1	1	..	..	1	1
Oxford „	1	1	2	..	1	..	..	..	..	..	..	..	..	..	..	..
Paris „	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Aberdeen Grammar School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Aldenham „	1	1	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Barbadoes, W.I., Harrison College	..	..	1	1	..	..	1	1	..	..	..	..	..	..	..	..
Bath College	6	6	3	1	4	4	1	1	3	2	3	1	..	..	3	1
Beaconsfield College, near Windsor	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Bedford Grammar School	8	5	5	4	5	3	9	5	8	2	10	5	6	4	6	2
Belfast, Methodist College	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Birmingham, Oscott College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Blackheath, Kidbrook House	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1
Boulogne-sur-Mer, France	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Bradfield College	2	..	1	1	2	2	1	..	1	1	1	1	1	1	3	..
Brighton College	..	..	..	..	1	1	..	..	..	..	3	2	1	1	1	..
Bristol	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..

Return of Schools, &c.—*continued.*

School, &c.	February, 1890.		September, 1890.		February, 1891.		September, 1891.		February, 1892.		September, 1892.		February, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
British Guiana, Queen's College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Bromsgrove	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Bruges, Belgium	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Bury St. Edmunds	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Canterbury, King's School	1	1	1	1	..	..	2	1	1	1	1	1	..	..	1	1
Charterhouse School (*see* Godalming)																
Chatham House College	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Cheltenham College	7	6	7	3	8	7	4	3	6	3	5	2	7	3	4	4
Chigwell School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Clifton College	7	4	8	5	10	5	9	6	7	5	10	6	6	4	1	1
Clongowes Wood College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Combe Down	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Cranleigh	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	..
Crediton	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Darmstadt	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Denstone	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Derby	..	..	..	..	..	..	2	..	..	..	1	1	..	..	..	..
Devonport, Exmouth House	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Doncaster	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Dover College	4	4	3	2	4	4	2	1	..	..	1	1	..	..	1	1
Dublin, High School	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Dublin, Leeson School	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Dublin, St. Columba's College	1	1	..	..	..	..	..	..	..	..	1	1	..	..	..	..
Dulwich College	1	1	1	..	..	..	5	3	4	3	1	1	2	1	1	1
Durham Grammar School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Downside College, near Bath	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..

Eastbourne College	1	1	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..
Edgbaston (Oratory)	1	1	1	1	1	1	..	..	..	1	1	..	..	..	..	..	1	1
Edinburgh College School	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..
Edinburgh, Rankin's	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Edinburgh, Watson's	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Elstree	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ely, King's School	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
Enniskillen, Port Royal School	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
Epsom	..	..	..	..	..	..	1	1	..	..	2	1	..	..	..	..	..	..
Eton College	9	6	12	5	15	5	6	3	12	4	10	7	9	5	8	6		
Exeter	..	..	1	1	1	..	..	..	1	1	..	..	..	..	..	..		
Farcham, Eastman's R.N.A.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
,, Stubbington House	..	..	..	..	..	..	1	1	1	1	..	..	..	..	1	1	..	..
Felstead Grammar School	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..
Fettes College (*see* Musselburgh).																		
Foyle College	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Germany	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Geidt Frankfort o/m	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Giggleswick School	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Great Berkhampstead Grammar School	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Glenalmond, Trinity College	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1	1
Godalming, Charterhouse	6	5	5	3	10	9	3	3	1	1	8	8	4	4	4	4		
Guernsey, Queen Elizabeth's College	..	..	..	..	1	1	2	1	..	..	1	..	1	1	..	..		
Hammersmith Godolphin School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Hampstead, Belsize Park	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..
Hanover	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..
Harrow	4	4	7	5	9	9	8	5	6	3	9	7	3	3	4	3		
Haileybury College	7	5	7	6	7	7	5	4	1	1	8	8	3	3	2	2		
Heidelberg (*see* Neuenheim).																		
Heversham	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Highgate	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Honiton, All Hallows	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Hull and East Riding School	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inverness College	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Ipswich	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..
Isle of Man, King William's College	..	..	1	..	4	1	..	..	..	..	1	..	..	..	..	..	..	..
Isle of Wight, Appledurcombe College	..	..	..	..	1	..	..	..	2	2	..	..	..	..	1	..	..	..

Return of Schools, &c.—*continued.*

School, &c.	February, 1890.		September, 1890		February, 1891.		September, 1891.		February, 1892.		September, 1892.		February, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Jersey, Victoria College	..	..	3	3	..	..	..	..	..	..	..	..	..	..	..	..
King's College School (*see* London).																
Lancing, St. Nicholas College	2	2	3	3	1	1	1	1	1	1	..	..	..	..	..	..
Leamington College	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
London, Charles College, W.	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
„ City of London School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ King's College School	1	1	..	..	2	1	..	..	..	..	..	..	..	..	..	..
„ Merchant Taylor's	2	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..
„ St. John's Wood	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
„ St. Paul's	3	3	3	2	3	3	2	2	3	2	4	4	3	3	6	5
„ University College School	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
„ Westminster School	1	1	1	1	2	..	1	1	..	..	..	..	2	1	..	..
Malvern College	..	..	..	..	2	1	1	..	1	1	2	1	2	2	2	..
Marlborough College	4	2	7	6	8	6	4	4	3	2	2	1	..	..	6	5
Merchant Taylor's School (*see* London).																
Musselburgh, Fettes College	3	2	1	1	..	..	2	2	1	1	2	1	..	..	1	..
„ Loretto School	2	2	1	1	..	..	1	1	..	..	..	..	1	1	..	..
Neuenheim College, Heidelberg	1	1	..	..	1	..	2	1	1	1	..	..	..	..	1	1
Newcastle	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
New Cross, Royal Naval School	..	..	1	1	1	..	..	..	2	2	..	..	..	..	1	1
Newton Abbot College	1	1	1	1	1	1	1	1	1	1	..	..	..	..	1	1
New Zealand, Christ Church	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Northampton	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
North Corry, near Taunton	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Norwich	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Ostend (Grosvenor College)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Oundle	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Oxford Military College	..	..	..	..	2	1	2	1	3	3	..	..	2	1	1	1	1	..	..	..
Oxford, St. Edward's	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Polmont, N.B., Blair Lodge	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	1	1	1	1
Portsmouth Grammar School	..	..	..	..	..	..	1	1	..	..	1	..	1	1	..	..	..	..	1	..
Plymouth, Mannamead School	..	..	..	..	..	..	1	1	2	1	..	..	..	..	1	..	1	..	..	..
Paris	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Poona, E.I., Bishop Cotton School	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	..	..	..	..
Queenstown, Cape Colony, High School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Radley College	..	..	..	..	..	..	..	..	1	1	..	..	1	..	2	2	1	1	..	..
Ramsgate, South-Eastern College	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2	2	..	..
Repton	..	..	..	..	..	..	1	1	1	1	..	..	3	1	1	..	2	..	5	2
Reading	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..
Rossal	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	1	1
Rugby	..	..	..	..	..	..	7	3	4	4	2	2	6	2	1	..	5	2	2	1	1	..
St. Kenelms	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
St. Michael's College	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..	..	..	..	..
St. Paul's School (*see* London).																						
Sedbergh	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..	..	..	..	..
Sevenoaks Grammar School	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Sherborne	..	..	..	..	5	5	2	2	2	..	..	..	..	..	1	1	1	1	2	2	1	1
Shrewsbury	..	..	..	..	1	1	1	..	..	..	..	..	..	..	2	..	1	1	1	1	..	..
Southsea, St. Helen's College	..	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	1
Stamford Grammar School	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stoneyhurst College	..	..	..	..	2	2	1	1	1	1	2	2	1	1	..	..	2	2	..	..
Streatham	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Sunbury	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sutton Valence	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Tavistock Grammar School	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tavistock, Kelly's College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	1	..	..	..	..
Tiverton, Blundell's	..	..	..	..	3	3	1	1	2	1	..	..	1	..	1	1	1	..	..	..
Tonbridge	..	..	..	..	..	..	1	1	1	1	1	..	..	..	3	1	..	..	1	..

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Return of Schools, &c.—*continued.*

School, &c.	February, 1890.		September, 1890.		February, 1891.		September, 1891.		February, 1892.		September, 1892.		February, 1893.		September, 1893.	
	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.	Total.	Assisted by Private Tutors.
Uppingham	2	1	1	1	1	1	3	2	..	..	..	..	1	..	1	1
Ushaw College	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..
Wakon's College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Walthamstow, Forest School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Ware, St. Edmund's College	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Wargrave	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Warminster Grammar School	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Warwick, King's School	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Wellington College	6	5	10	9	21	17	11	7	4	2	10	8	13	9	7	4
Westminster School (*see* London).																
Weston-S.-M., St. Peter's	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
Westward Ho!, U.S. College	2	1	4	3	6	5	4	2	6	6	2	1	3	1	3	1
Weybridge, St. George's College	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..
Weymouth College	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Winchester College	3	1	4	3	3	3	6	5	4	3	4	3	4	4	5	1
„ Winton House	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Windsor, Beaumont College	..	..	..	..	..	..	2	2	1	1	1	1	1	1	..	..
„ St. Mark's	1	..	..	..	1	1	..	..	..	..	..	..	..	..	1	..
Worthing	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..
Private Tutors	2	2	2	1	2	1	6	6	3	3	5	5	3	3	3	2
Total	141	107	151	108	176	125	145	103	121	79	131	94	106	77	100	64

ROYAL MILITARY COLLEGE,
9th November, 1893.

EDWARD CLIVE, *Lieut.-General,*
Governor, Royal Military College.

APPENDIX VII.

ABSTRACT of Returns received from the respective Head-Masters, showing the size of the Army Class at each of the undermentioned Schools, and the numbers, &c., of Candidates sent up for the Examinations for Entrance to Royal Military Academy, Woolwich, and Royal Military College, Sandhurst, during the last year, 1892–93.

School.	Average number of boys in the Army Class.	Numbers sent up at each half-yearly examination.		Number of successful candidates.		Remarks showing whether numbers taking up science subjects have increased or decreased in recent years.
		1st half year.	2nd half year.	Royal Military Academy.	Royal Military College.	
Bedford	20	..	..	6	9	Decrease.
Charterhouse ..	35	3	3	4	0	No science candidates.
Cheltenham ..	150*	16	15	12	3	No remarks.
Clifton	58	8	7	7	2	Decreased in a very marked degree.
Eton	110	17†	13†	2	7	No remarks.
Fettes	6	2	1	2	1	No remarks.
Haileybury	30‡	1	1	0	0	No science candidates.
Harrow	60	7	9	3	2	Increased.
Marlborough ..	23	9	14	6	6	Decreased in a marked degree.
Oxford Military College.	..§	15	15	..	13‖	Science not encouraged except in special cases.
Portsmouth ..	20	11	8	3	3	No change, chemistry is an ordinary school subject.
Rugby	45	2	9	2	3	No remarks.
St. Paul's	36	9	9	8	..	All candidates for Woolwich take up chemistry and algebra.
Wellington	100¶	16	22	2	12	No change observed.
Westward Ho ..	..**	6	9	4	3	Decreased.
Winchester	23	3	7	1	5	Few take up science.

* Includes the whole modern side, down to the lowest form, which is organized for Army teaching.

† In these numbers are included those who, being Militia candidates, obtain qualifying marks only, and do not compete for entrance to Woolwich or Sandhurst.

‡ This class has only existed for one year.

§ The school is composed wholly of Army candidates.

‖ Includes Militia candidates and covers two examinations.

¶ The work of all boys in the mathematical school (260 to 270 boys) is arranged to suit Army examinations. About 100 are receiving special instruction for these examinations.

** No Army class, so called, exists; but more than one-third of all the boys in the school and more than one-half of the upper 30 boys are intended for the Army.

NOTE.—This Return should not be taken as more than a comparative statement of the facilities offered at each school named for furnishing boys intending to compete for the Army, with some portion of the necessary education. The first column is accordingly the most important.

APPENDIX VIII.

Army Entrance Examinations—Correspondence.

In the course of collecting some information showing the numbers of candidates for Army Commissions supplied direct from public schools, various statements and suggestions have been made by certain head-masters, which it may interest members of the Committee to see.

I.—Thus, the Head-Master of St. Paul's School writes as follows:—

The following considerations are put forward for the consideration of the Committee:—

1. The time requisite for the careful training of an Army candidate in the various branches of freehand drawing, namely, drawing and shading of models, drawing and shading from nature, pen and ink drawing, and elementary perspective, is very considerable, and is not adequately represented by the marks (500) at present assigned. A candidate is consequently tempted to treat freehand drawing with comparative neglect, and to devote himself to the subjects which seem more likely to be immediately remunerative. It is not until he has entered Woolwich or Sandhurst that he realizes the vast importance of freehand drawing in his professional work, but it is then more difficult for him to acquire such skill and facility as would naturally have followed from a longer training at an earlier age.

It is suggested, therefore, that the marks for freehand drawing be raised from 500 to 1,000.

2. In the regulations at present in force for admission to either Woolwich or Sandhurst, the experimental sciences, chemistry and physics, are treated as of no higher value than physical geography and geology.

It is suggested that, for admission to Woolwich, one of these branches, preferentially physics, be raised to Class I. with 2,000 marks; and that candidates be allowed to select one subject only of the six subjects then remaining in Class II. It is desirable also that the practical examination in physics should include the simpler general properties of solids, liquids and gases, the determination of specific gravities and the evaluation of g.

3. It is suggested that credit be allowed for physical fitness, and for proficiency in one or more forms of physical exercise, such as riding, gymnastics, fencing and boxing; but that the marks to be assigned do not exceed 300.

4. The examinations for admission to Woolwich and Sandhurst would be exactly parallel in range of subjects, but for the inclusion of statics and dynamics in the requirements for Woolwich in Class I. It is suggested—

(1.) That this subject be in future either dropped from the syllabus of obligatory mathematics for Woolwich, in consideration of the addition of arithmetic under the new regulations, and that of physics, as suggested in 2; or be added to the mathematical subjects in Class I. for Sandhurst.

(2.) That the examinations for admission to Woolwich or Sandhurst, which are now separate and independent, be in future amalgamated (subject to the adoption of (1)).

(3.) That candidates be required to state beforehand the order in which they would select admission to Woolwich, or an Infantry, a Cavalry or a West Indian cadetship (just as under the existing regulations for admission to Sandhurst, they are called upon to state their order of preference as regards the last three).

(4.) That a single list of candidates be published in order of merit according to the aggregate of marks; those who have qualified for Woolwich by reaching the Woolwich standard in mathematics being marked with an asterisk.

(5.) That the limits of age for Woolwich and Sandhurst be made identical. The object of this suggestion is that a candidate who chooses Woolwich preferentially and obtains a high aggregate of marks, but fails to reach the Woolwich standard in mathematics, may be admitted to Sandhurst without being required to undergo re-examination at a subsequent period.

II.—Mr. Beardoe Grundy, the Head-Master of the Oxford Military College, writes—

Personally, I discourage all candidates who have not a special taste for science, from taking up the subjects which come under that heading. I venture at the same time to suggest that the War Office authorities will never be able to obtain really reliable data as to the value set on various subjects, until the Civil Service Commissioners adopt some more effective plan of bringing the marks given by the examiners in the various subjects to a relative level.

I may mention, as an instance of what I mean, that in the last examination a University candidate, who had taken his degree in classics and been working at Greek for 10 years, obtained 850 marks odd in that subject, whereas a boy, who had been working at German for two terms, obtained 750 marks. This placed their relative standard at $8\frac{1}{2} : 7\frac{1}{2}$. Their real standard was about 5 : 1.

In the Joint Examining Board of the Oxford and Cambridge Schools Examination this arrangement of standard is invariably carried out after the examiner's marks have been received. Thirteen years' experience of Army examinations makes me believe that the Civil Service Commissioners do not give much attention to this very important point.

III.—Mr. Drury, of Marlborough College, writes—

There has been a marked decrease in the number of boys taking up science and the higher mathematics, lately the preference has been for history and the alternative modern language.

We find it very difficult, with our school hours, to send up boys properly prepared in five subjects, and we would welcome a return to the old system where boys were restricted to four; the more subjects the more cramming.

We would like to see the obligatory mathematics made harder, and the higher mathematical papers made somewhat easier.

IV.—Mr. Cornell Price, of Westward Ho, writes—

No Army class, so called, exists at Westward Ho. More than one-third of all the boys, and more than one-half of the upper 30 boys, are intended for the Army. Candidates for the Army, during their last year or so, receive a good deal of special attention out of school hours. The normal work of the Upper School is mathematics, Latin, French, German, and history. Greek can be substituted for German, and chemistry for history.

Of the (30) successful candidates direct from school (1889–93) only eight took up science—chemistry in each instance. We have at present a class of 12 who learn chemistry, of whom six are Army candidates, and most of these likely to pass direct from school.

About 8 to 12 years ago we had an efficient geography and geology class, but found it expedient to abandon it; as, although a quick subject for moderate marks, it proved "not to pay" compared with other non-science subjects. I have received frequent assurances from "old boys" that it is this branch of their school work which has subsequently proved of greatest utility and afforded greatest pleasure.

I believe that nothing short of the inclusion of a science among "obligatory subjects" will bring about satisfactory results. It is noteworthy that only 2 or 3 per cent. of Officers in the Line have received any training in physics—and the majority of these probably have not passed beyond the rudiments. In the allotment of marks sufficient regard, in my opinion, has not always been paid to the fact that, whereas languages work into one another—as do also mathematics and geometrical drawing—the sciences stand more isolated, especially geology. There are very few instances of a candidate having successfully taken up two sciences; though this possibly may be accounted for by the exigencies of school curriculum, which precludes indulgence in more than one.

I am not sure from your communication whether you desire to elicit opinion on other branches of the examination, but, if so, I venture to use this opportunity of expressing my opinion that the reduction of marks for the colloquial part of modern languages has not been an unmixed good either for schools or Army candidates. The power of speaking and thinking in a language not one's own is a great acquisition, and there is special need for Officers on Indian service to have had early training in the right art and method of learning a modern language. For this reason the Army examination tests—whether by dictation, translation, or composition—might with advantage embrace more dialogue than is usually given.

As to geography and dictation, if liberal marks are given in the final examination for these subjects, it will be the less necessary to fix a high standard of qualification in them; for defaulters in these items would be so heavily mulcted that a successful place in the list would imply very high proficiency in their other work.

V.—The Rev. H. A. James, Head-Master of Cheltenham, writes, enclosing some observations by Mr. Baker, the Head-Master of the Military and Civil Department, as follows :—

I entirely endorse his conclusions, and wish to call special attention to the present discouragement (which is rapidly assuming very serious importance) to candidates who take up science and higher mathematics for Woolwich.

Mr. Baker's remarks are—

As regards the number of boys in our Army Class.

Of the 300 boys in the Military and Civil Department, about 180 are preparing for the Army, and the scheme of work throughout this department is drawn up to suit the requirements of the Army examinations.

German and Science.

There is now a distinct inclination towards German rather than science, due entirely to the fact that candidates are aware that those who enter Woolwich knowing German and no science, have a better chance of Engineers than those who enter knowing science and no German.

They also are aware that they can learn enough science at Woolwich to satisfy the requirements there, whereas it is impossible to learn enough German at Woolwich to be able to score marks in the examination there in that subject.

I wish also to call attention to the enclosed statistics taken from the Woolwich list of last June. They show that candidates who take higher mathematics are handicapped as against those who take up other subjects in Class II. I should have thought that boys who are to become Engineers and Artillerymen should be *encouraged* to study higher mathematics. The reverse is the case, and the result is that the number of those who take this subject at the entrance examination is diminishing rapidly.

ENTRANCE EXAMINATION FOR WOOLWICH, JUNE, 1893.

Of the 50 successful candidates—

Latin	50	took this subject,	37	gained over half marks.		
French	49	" "	43	"	"	
German	25	" "	17	"	"	
Science	17	" "	14	"	"	
English history ..	9	" "	7	"	"	
Physics	6	" "	5	"	"	
Physiology, geography, and geology	4	" "	2	"	"	
Higher mathematics ..	30	" "	7	"	"	

VI.—Mr. Phillpotts, Head-Master of Bedford School, writes—

There has been a decrease in the numbers taking up chemistry. It is found that the practical work required for chemistry takes too much time; but, at the same time, the practical is the best and most valuable part of the work, as it cannot be crammed.

Physics went out of favour, but has been coming into favour again lately.

A good deal depends on the marking. If it was found to be not very difficult to get (say) 1,000 marks in chemistry, many would take it up.

What would be desirable would be that those candidates who have a natural aptitude for a subject should take that as their fourth or fifth subject. But, of course, it is difficult to make the examination exactly self-adjusting in this way.

APPENDIX IX.

EXTRACT from the Report of a Committee appointed to report upon the amount of Instruction in Electricity, which should be given at the Royal Military Academy.

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17. The importance of the subjects submitted to us has led us to the consideration as to whether the study of electricity should in any way be made more obligatory than it is at present. This could be done in two ways—

(1.) By requiring each cadet to obtain a certain decimal in physics at the final examination.

(2.) By making physics obligatory at the entrance examination.

18. As regards the first way, we are not prepared to recommend this for adoption, bearing in mind that about a third of the cadets are required for Field Artillery, in which service the knowledge of electricity is not of the same necessity as it is for Garrison Artillery and Engineers.

19. As regards the second way, the present entrance examination is divided into three classes as follows:—

Class I.—Mathematics, Latin, and one Modern language (all three obligatory).

Class II.—Higher Mathematics, second Modern language, Greek, English History, Chemistry, Physics, Physical Geography and Geology. (Any two, but no more, of these seven may be taken up.)

Class III.—English Composition, Freehand Drawing, and Geometrical Drawing. (All three may be taken up.)

As it has been held to be undesirable to encourage the taking up of too many subjects, the addition of another subject to Class I. cannot be recommended, and would, moreover, entail the reduction of one of the voluntary subjects in Class II. which would narrow the choice of subjects in a way that would be detrimental to general education.

We are also informed that the present scheme for the entrance examination has been arrived at after various changes and great consideration; that it has met with the entire approval of the Civil Service Commissioners and those who have had practical experience in the education of candidates for the Army; and, above all, that the results have proved most satisfactory, inasmuch as the successful candidates, who have entered Woolwich under the present regulations, leave nothing to be desired in all those better qualities which form the basis of the character of the best sort of Officer.

20. Steps may, however, be taken, in our opinion, to encourage the taking up of Physics, under Class II., and the following fact, which has come to our notice, is deserving of serious consideration:—

Up to 1886 it was the custom to allow the cadets at the Royal Military Academy to take up a large number of voluntary subjects. In that year a Committee, of which Lord Morley was Chairman, was appointed at the War Office to enquire into the course of study at the Royal Military Academy. Their report recommended the abolition of these voluntary subjects, except Higher Mathematics, Landscape Drawing, and one Modern language, either French or German, the other of these two being included in the Obligatory Course, both languages being, however, dropped after the first year's course. This recommendation was approved by the Secretary of State, and came into effect with the cadets who joined the Royal Military Academy at the beginning of 1889.

21. We are informed that the experience of the four years during which the rule has been in operation, shows that the effect of allowing marks for a voluntary modern language in the 4th and 3rd classes at the Royal Military Academy has been to make it almost imperative that any candidate who wishes to enter the Engineers, should take up a second Modern language for his entrance examination, and has practically had the effect of giving that language an advantage over the other subjects in Class II. of that examination. This advantage must necessarily be detrimental to the study of the other subjects, among which physics is included.

22. It might be thought that the fact that Chemistry and Physics are amongst the subjects included in the course at the Royal Military Academy would be an inducement to give them a preference amongst the optional subjects at the entrance examination; but this is not the case, nor can it be expected that it should be so, when it is considered that the marks gained in a voluntary subject are a clear gain over and above the marks obtained in the regular course. A cadet who had previously studied Chemistry or Physics could not expect to gain thereby more than 200 to 300 marks above others who had not so studied it, but by a voluntary language he can safely reckon on at least 500 or 600 marks.

If further proof be needed, we need only mention the fact that since the introduction of the present course, very few cadets have ever obtained commissions in the Royal Engineers without taking up a voluntary modern language.

23. Whilst fully appreciating the advantage of a knowledge of modern languages, we feel it is undesirable to allow so great a weight to be attached to them to the detriment of other important subjects, and we, therefore, recommend that the voluntary modern language be discontinued. This will still leave one modern language for study at the Royal Military Academy, and for the entrance examination itself, a second language will still remain as valuable as it is at present, whilst the intention of those who framed the scheme for the entrance examination will be given effect to, by allowing an unbiassed choice of subjects from Class II. for every candidate.

In making this recommendation we have not been unmindful of the fact that the course of study at Sandhurst does not include any modern language. The young Officers of the Royal Artillery and the Royal Engineers need not, therefore, be at any disadvantage with those of other branches of the Service by the adoption of the course which we recommend.

24. As the time to be devoted to the study of Physics will, if our recommendations be adopted, be considerably increased, we think that the marks allotted to this subject should be also increased, and we consider that the following would be a fair re-allotment:—

4th Class, 500 marks, including 100 for practical work.

3rd Class, 1,000 marks, including 300 for practical work, and 50 for examples and notes.

2nd Class, 500 marks, including 200 for practical work, and 50 for examples and notes,

1st Class, 1,000 marks, including 400 for practical work, and 50 for examples and notes.

By thus increasing the marks for Chemistry and Physics by 50 per cent., and considering the fact that a very large proportion of these marks must necessarily be allotted to Physics, there will obviously be considerable extra inducement to candidates to take up Physics as one of the subjects in Class II. at the entrance examination.

(Signed) ROBERT BIDDULPH, *General.*
H. HART.
EDEN BAKER, *Lieut.-Colonel, R.A.*
M. H. PURCELL, *Lieut.-Colonel, R.E.*
ARTHUR H. BAGNOLD, *Major, R.E.*
H. C. L. HOLDEN, *Major, R.A.*

With regard to paragraph 18, I wish to record my opinion that, unless a decimal be insisted upon, the desired end will not be attained.

ARTHUR H. BAGNOLD, *Major, R.E.*

A. M. DELAVOYE, *Colonel,*
Secretary.

WAR OFFICE,
May, 1893.

APPENDIX X.

MEMORANDUM on the Military Examinations conducted by the Civil Service Commissioners, showing the principles on which the different schemes of examination since 1870 have been framed, and their several effects.

The literary examinations, which since 1870 have been conducted for the War Office by the Civil Service Commissioners, are (1) the examination for admission into the Royal Military Academy, Woolwich; (2) the examination for admission into the Royal Military College, Sandhurst; (3) the examination of Officers of the Auxiliary Forces nominated for commissions in the Army. The schemes of these examinations have been framed from time to time by the War Office, acting in concert with the Civil Service Commissioners, with a view to carrying out the recommendations of the Royal Commission of 1869-70, appointed to enquire into the state of military education.

As regards the two "entrance" examinations, the regulations appear always to have kept in view two principles, to which great prominence was assigned in the Report of the Royal Commission, as may be seen from the following extracts:—

"In determining the character of the entrance examination, we have sought to harmonize the list of subjects more completely with those taught at the great public schools. We have done so for two reasons: in the first place in order as much as possible to render it unnecessary for the candidates to resort to the intervention of the crammer; and in the next place for the purpose of encouraging the acquisition of the groundwork, at least, of a liberal education before they devote themselves to the special professional course which awaits them at the college."

The reason of the desire of the Royal Commission that Officers should be recruited for the Army direct from the public schools is explained in the following paragraph:—

"From the evidence before us it appears that this 'cramming' process is almost universally resorted to by those who seek admission to the two military colleges, as well as by candidates for direct commissions, of whom scarcely more than 5 per cent. can be traced as coming direct from the great public schools. This practice cannot be too much deprecated. However able the gentlemen may be, who make it their profession to meet the demand thus created, and however earnest their desire to give a good moral tone to their establishment, it is but too evident that, from the age of the pupils, the short period of their stay, and the indiscriminate welcome almost necessarily offered to all who seek such assistance, it would be difficult for the most conscientious and high principled gentleman either to maintain discipline, or to impose a high mora tone among the heterogeneous and shifting squads of pupils who pass through his hands."

The main objects of the military authorities in framing successive schemes of examination have therefore doubtless been (1) that the successful candidates shall have received a good general education before beginning their professional training; (2) that this general education shall be of the kind usually given in the public schools of the country, from which it is hoped that candidates may be recruited without the intervention of the crammer.

To effect these objects has been no easy task. When the Civil Service Commissioners undertook the conduct of the examinations, the scheme which, after a certain amount of preliminary correspondence, was finally adopted, was as follows:—

1. Mathematics, including the subjects of the qualifying examination with more advanced geometry and algebra, and plane trigonometry.

2. English composition (tested by the power of writing an essay, letter or précis and English literature, limited to specified authors, or—

2a. English composition as above, and English history, the examination in the latter subject being limited to certain fixed periods notified beforehand.

3. Latin.

4. Greek.

5. French; the examination to be partly colloquial.

6. German; do. do. do.

7. Experimental sciences limited to one of the following branches, viz., (1) chemistry, including heat, (2) electricity and magnetism.

8. Freehand (figure and landscape) drawing.

Marks for these subjects should be given in the following proportions:—

	Marks.
1 Mathematics (including 1000 for qualifying examination)	4,000
*2. English composition and literature	1,500
*2a. English composition and history	1,500
3. Latin	3,000
4. Greek	2,000
5. French	2,000
6. German	2,000
7. Experimental sciences	1,500
8. Freehand drawing	1,000

Of these eight subjects a candidate should not be allowed to take up more than five, or six if freehand drawing be one of them.

A minimum of $\frac{1}{5}$th should be deducted from all marks gained by a candidate.

For the entrance examination for the Royal Military Academy the only difference from the foregoing was—

1. Mathematics, including the subjects of the qualifying examination, together with plane trigonometry, mechanics, hydrostatics, spherical trigonometry, and differential and integral calculus.

The principle on which this scheme was framed was evidently, in the first place, to include all subjects usually taught in the public schools; then to determine the relative educational importance of each subject by the number of marks assigned to it; and finally, after these precautions, and after limiting the number of subjects which candidates might take, to allow each candidate freedom of choice in the combination of subjects. Such an arrangement might have worked well, had the marking of the subjects corresponded exactly with the value attached to each subject in the organized education of the country. But this was not quite the case. For example, Greek, which in the usual public school curriculum stands (or then stood) on the same level as Latin, was marked in the scheme at 2,000, Latin being marked at 3,000; while on the other hand English, which as a systematic subject of education, was at that date scarcely recognized in the public school curriculum, was marked 3,000; French and German, which were both regularly taught in the public schools, having only 2,000 marks each. Moreover, English was a subject which lent itself somewhat readily to "cram." Hence, as competition almost necessarily drives candidates to select the subjects which are assigned most marks, the services of the crammer, who can adapt himself to any combination of subjects, were under this scheme, more in request than ever, and the number of candidates passing into Woolwich and Sandhurst direct from the public schools was proportionately small.

Though I do not find that any correspondence passed on the subject between the military authorities and the Civil Service Commissioners, I infer that it must have been the opinion of the former that the first scheme had failed in the purpose for which it was framed, for, in 1883, there were communications between the two departments with a view to the revision of the regulations, and on the 17th March, 1883, the Civil Service Commissioners observe: "It may, perhaps, be assumed to have been the intention of those by whom the scheme of examination was framed that the competition should turn mainly, but not exclusively, on two classes of subjects, viz., first, those branches of a liberal education which are most directly useful in the military profession, and secondly, those which are most commonly taught in ordinary places of English education, and especially in the great public schools, which, in the view of the Royal Commissioners on Military Education, furnish, as at present constituted, the very best material for the officering of our Army."

* Candidates after this scheme was framed were allowed to take both parts of English, which subject thus secured 3,000 marks.

To carry out these views new regulations for the entrance examinations into Sandhurst were framed, which came into force in 1885, and in 1886 Lord Morley's Committee recommended that the entrance examination for Woolwich should be framed on similar lines. The scheme for Sandhurst was as follows :—

FURTHER EXAMINATION.

CLASS I.

	Marks.
1. Mathematics, up to and including mensuration	3,000
2. Latin	3,000
3. French (600 for colloquial)	3,000
4. German (600 for colloquial)	3,000

CLASS II.

1. Greek	2,000
2. Higher mathematics, up to differential calculus	2,000
3. English history	2,000
4. Experimental sciences	2,000
5. Physical geography and geology	2,000

CLASS III.

1. English composition, tested by the power of writing an essay, letter or précis	500
2. Drawing, freehand	500
3. Drawing, geometrical	500

Of these subjects candidates were not allowed to take up more than four, exclusive of Class III., nor were they allowed to take up more than one from Class II., but they might in addition take up all Class III.

These regulations came into force in November, 1888. In the Woolwich scheme the only difference from the above was in mathematics, a portion of which was obligatory.

Obligatory.

	Marks.
Mathematics up to elementary statics and dynamics (Class I.)	3,000
Higher mathematics	3,000

(Which was taken from Class II.)

Though the object of this scheme was to assimilate the examination more closely to the lines of general education as established in the public schools, its practical effect was different from what had been intended. The scheme, while restricting more closely than before the candidate's choice of subjects so as to suit the general school curriculum, appeared to leave him a certain amount of liberty. In practice, however, the stress of competition obliged the great majority of candidates to select the four highly marked subjects in Class I., and this combination of subjects did not necessarily correspond either with the established course of education at the public schools, or with the natural preferences of the individual candidate. Candidates educated on the classical side of public schools would not, in the ordinary course, take two modern languages. Candidates of a scientific turn were forced to forego their favourite study, or else to enter the competition at a disadvantage compared with those taking French and German. Hence the scheme in operation produced effects exactly opposite to the wishes of the military authorities, for (1) it allowed candidates to form combination of subjects which were not educationally desirable, *e.g.*, a candidate might enter Sandhurst taking nothing but languages, Latin, Greek, French and German; and (2) it played directly into the hands of the private tutor, precisely in proportion as it diverged from the course of education established in the public schools. Great numbers of boys cut short their school career in England, in order to acquire a smattering of colloquial French and German with private tutors on the continent. Under these circumstances it is not surprising that the scheme should have provoked general discontent. Frequent complaints from schoolmasters were received in this department, and the representatives of science protested in Parliament.

Observing these things, the Civil Service Commissioners, in 1888, addressed a memorandum to the War Office, in which they pointed out the effects produced by the scheme, and suggested remedies which, in their opinion, would remove the evils complained of, and would secure the objects aimed at by the military authorities. This led to a conference between the then Secretary of State and the Civil Service Commissioners, and finally resulted in the present scheme of examination for entrance into Sandhurst and Woolwich, which came into force in June, 1891, and is as follows:—

Further Examination (Woolwich).

Class I. (Obligatory.)

	Marks.
1. Mathematics—A thorough knowledge of each of the following four branches of mathematics will be required:—	
(*a.*) Algebra, up to and including the binomial theorem, the theory and use of logarithms	3,000
(*b.*) Euclid, Books I. to IV. and VI.	
(*c.*) Plane trigonometry, up to and including solution of triangles, and mensuration	
(*d.*) Statics and dynamics: Statics—the equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers. Dynamics—uniform, uniformly accelerated, and uniform circular motion; falling bodies and projectiles in vacuo. (Analytical methods of solution will not be required) ..	
2. Latin	2,000
3. French or German (200 for colloquial)	2,000

Class II. (Any two subjects may be taken up.)

1. Higher mathematics. Further questions and problems on the subjects of the obligatory examination—Statics: problems and exercises will be extended to friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to statics will be required. Dynamics: problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work. Analytical geometry: problems on straight line and circle. Conic sections: elementary properties with easy problems, both on the analytical and geometrical methods	2,000
2. German or French, as alternating with Subject 3 in Class I.	2,000
3. Greek	2,000
4. English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
5. Chemistry. Elements of inorganic chemistry	2,000
6. Physics. Elementary properties of electricity, magnetism, heat, light, sound	2,000
7. Physical geography and geology, chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

Class III. (All three subjects may be taken up.)

1. English composition, tested by the power of writing an essay or letter ..	500
2. Drawing, freehand	500
3. Drawing, geometrical	1,000

For the Royal Military College the above holds good, except that in mathematics, Class I. requires only—

	Marks.
Algebra, up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I.—VI.; plane trigonometry, up to and including solution of triangles and mensuration	2,500

The intention of this scheme was to define precisely what was to be understood by the words used by the Royal Commissioners, "the groundwork, at least, of a liberal education," and at the same time to make provision for the various tastes and acquirements of the candidates who might be expected to present themselves for examination. The first of these objects was meant to be secured by Class I., in which those subjects only were included which were universally taught in the public schools, alike on the classical and modern sides; the second was provided for by Class II., which allows a candidate to combine with the subjects he is obliged to take either two scientific subjects, or one scientific subject + a second modern language, or one scientific subject + English history, or a second modern language + English history, or higher mathematics + either a second modern language or English history or one scientific subject.

As far as can be judged from the short time during which the scheme has been in operation, it has fully answered the purpose with which it was framed. The complaints so frequently received in this department while the preceding scheme was in force have ceased, from which it may be inferred that there is no longer any want of harmony between the examination and the system of public school education established throughout the country. On the other hand, one of the main objects of the Royal Commission is being rapidly attained, for boys are coming in increasing numbers, and with always increasing success, direct from the public schools. At the same time, the standard of general attainment, as shown by the competition, is rising; and with a few slight alterations a satisfactory guarantee will be furnished under the existing regulations, by the competition itself, that the successful candidates will each have received a sound liberal education before the commencement of their professional training.

On the whole subject, my opinion is that it would be extremely unwise to make any radical alterations in the scheme as it now stands, at any rate, before full time has been given to watch the effect of its operation. Of its effect on the education of the successful candidates I have already spoken. But the influence of the examination is felt far beyond the limited number of those who succeed in entering the military colleges; and since the State has determined that these institutions shall be recruited mainly by the system of open competition, I think it is bound to consider the effects of this system, not only on the minority of candidates who succeed, but on the majority who fail. At present the examination in no way interferes with the general education of the candidates; but if any attempt were made to give an educational lead to the country in any direction, either by increasing the number of obligatory subjects, or by (what comes to the same thing) giving any superiority in marks to one or more of the optional subjects over the rest, a serious dislocation of the whole machinery of education throughout the country would probably be caused, which would react with great prejudice to the system of open competition in the public service, for the administration of which the Civil Service Commission is responsible.

I think, however, that, in the interests of science, it would be expedient to make a slight change in one of the subjects of examination, viz., physics, which, in my opinion (formed on enquiries I have made after observing the results of the examination) is too extensive for boys, and which, I would suggest, might be divided into two parts, each valued at 2,000 marks—(1) electricity and magnetism; (2) heat, light, and sound; allowing candidates the choice of either part. The effect of such a change would be, I believe, to increase considerably the number of candidates who take this subject.

On the subject of the examination of Officers of the Auxiliary Forces for Commissions in the Army, I will merely say that the standard of the candidates' attainments, as tested by the examination, appears to be unfortunately low, and that I believe this result is largely due to the low minimum of marks which is required for qualification. For the purposes of this department, it would be desirable that, as the scheme of examination for these candidates is identical with the admission examination for Sandhurst, the two examinations should always be held at the same time.

W. J. COURTHOPE.

APPENDIX XI.

Addition to Captain James's Evidence.

I append hereto my actual proposition as to the system of examination, as it might not be quite clear to the members of the Committee from my evidence.

My proposal is to use Class I. as a preliminary examination, carrying forward the marks obtained in it towards the competition, but the whole of the examination would have to be done at the same time, not, as was formerly the case, in two parts.

It will be observed that I have marked all languages alike, excepting those in which colloquial is advantageous, 500 marks being given for this.

It is, in my opinion, a matter of indifference whether Latin be still retained as a qualifying subject or not, but in my scheme I have placed it in Class II.

The following table shows the allotment of marks for the Royal Military Academy, Woolwich; that for the Royal Military College, Sandhurst, will be exactly the same, except that higher mathematics will only be given 2,000 instead of 3,000 marks. (*See* page of my evidence.)

Under my proposed scheme a candidate would be required to take up the whole of Class I., any two subjects out of Class II., and Class III. (freehand drawing) could also be taken.

In science the subjects under *a*, *b*, *c*, *d*, &c., would be alternative; that is to say, a candidate could not take more than two.

It will be a matter of consideration as to whether three subjects should be allowed out of Class II. On this point my mind is open; I see advantages and disadvantages whichever determination be come to.

If three subjects be taken up, I would insist upon one of them being a modern language.

W. H. J.

Royal Military Academy, Woolwich.

Class I.—Obligatory.

	Marks.
Mathematics, as at present	3,500
French or German (500 for colloquial)	2,500
History, English, from 1688 to 1815 (500 being given for an English essay)	2,500
Geography, political	1,000
Geometrical drawing, including orthographic projection	1,000

One-fifth marks in each of the above given subjects must be obtained to qualify.

Class II.

	Marks.
Higher mathematics (*see* present Syllabus)	3,000
Greek	2,000
Latin	2,000

Any modern language not taken in the the Obligatory subjects. Selection to be made among the following:—

(500 to be given for colloquial.)

	Marks.
Norwegian, Swedish, Danish, German, Dutch, French, Italian, Roumanian, Spanish, Portuguese, Hungarian, Turkish, Russian, Bohemian	2,500
Science—	
(*a.*) Chemistry	2,500
(*b.*) Light and heat	
(*c.*) Electricity and magnetism	
(*d.*) Physiography and geology	
(*e.*) Mineralogy	
(*f.*) Zoology	
(*g.*) Botany	

Class III.

Freehand drawing	500

APPENDIX XII.

MR. WOLFFRAM'S PROPOSAL FOR ARMY ENTRANCE EXAMINATIONS.

PROPOSED SYNOPSIS OF THE SUBJECTS OF THE EXAMINATION, THEIR DISTRIBUTION INTO CLASSES, AND THE ALLOTMENT OF MARKS TO THE SEVERAL SUBJECTS.

I.—For Admission by Open Competition to the Royal Military College, Sandhurst, and for Commissions in the Royal Marine Light Infantry.

CLASS I.—OBLIGATORY.

		Marks.
1. ELEMENTARY MATHEMATICS—		
(*a.*) Arithmetic, including vulgar and decimal fractions, proportion and simple interest	500	
(*b.*) Euclid, Book I.	250	1,000
(*c.*) Algebra, up to and including simple equations	250	
2. ESSAY		500
3. GEOMETRICAL DRAWING		500
4. GEOGRAPHY, Descriptive, Political and Physical		2,000
5. Any one ANCIENT OR MODERN LANGUAGE enumerated in Class II.		2,000

Any candidate who fails to obtain 0·5 of the maximum number of Marks obtainable in subjects 1 to 3 inclusive, and 0·4 in subjects 4 and 5 will be debarred from proceeding with the Examination, but will not be disqualified at a future Examination should he then fail in obtaining the minimum number of Marks in any subject in which he has previously qualified.

CLASS II.—OPTIONAL.

(*Any three Subjects may be taken up.*)

1. FURTHER MATHEMATICS (Lower Course)	2,000
(*a.*) Algebra up to and including the binomial theorem, the theory and use of logarithms (but excluding the obligatory portion defined in Class I., 1).	
(*b.*) Euclid, Book II. to IV. and VI.	
(*c.*) Plane Trigonometry up to and including solution of triangles and mensuration.	

Marks.

2. FURTHER MATHEMATICS (Higher Course). Further questions and problems on the subjects of the Lower Course (1) 2,000

(*a.*) Statics, the equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers, and friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. [No application of the differential Calculus to Statics will be required.]

(*b.*) Dynamics, uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo, collisions and work. [Analytical methods of solution, but not the use of the differential Calculus will be involved.]

(*c.*) Analytical Geometry. Problems on straight line and circle. Conic Sections: elementary properties, with easy problems both on the analytical and geometrical methods.

3. ENGLISH HISTORY 2,000

There will be set one general paper, one paper limited to a fixed period of which notice will be given.

4. LATIN (including the *matter* of Cæsar's Gallic War) 2,000

5. GREEK 2,000

6. FRENCH 2,000

7. GERMAN 2,000

8. ITALIAN 2,000

9. RUSSIAN 2,000

The Marks in Nos. 6, 7, 8 and 9 are distributed as follows:—

Translation into English, Grammar and Idioms	700	2,000
Translation from English	700	
Colloquial and Dictation	600	

10. CHEMISTRY (Elements of Inorganic Chemistry) 2,000

11. PHYSICS (Elementary properties of Electricity, Magnetism, Heat, Light, and Sound) 2,000

12. GEOLOGY AND MINERALOGY, including the recognition of the leading fossils, of the more familiar rocks and minerals, and their properties and uses 2,000

In each of the subjects 10, 11, *and* 12, *the Examination will be partly practical.*

CLASS III.

(*May be taken up by all.*)

1. FREEHAND DRAWING 500

II.—For Admission by Open Competition to the Royal Military Academy, Woolwich.

CLASS I.—OBLIGATORY.

	Marks.
1. MATHEMATICS (Lower Course). A thorough knowledge of each of the following four branches of mathematics will be required:—	
(*a.*) Algebra, up to and including the binomial theorem; the theory and use of Logarithms	
(*b.*) Euclid, Books I. to IV., and VI.	
(*c.*) Plane Trigonometry, up to and including solution of triangles, and Mensuration	3,000
(*d.*) Statics and Dynamics: *Statics*—The equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers; *Dynamics*—uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. [Analytical methods of solution will not be required]	
2. ESSAY	500
3. GEOMETRICAL DRAWING	500
4. GEOGRAPHY (Descriptive, Political and Physical)	2,000
5. Any one ANCIENT OR MODERN LANGUAGE enumerated in Class II. ..	2,000

Any Candidate who fails to obtain 0·5 *of the maximum number of Marks obtainable in subjects* 1 *to* 3 *inclusive and* 0·4 *in subjects* 4 *and* 5 *will be debarred from proceeding with the Examination, but will not be disqualified at a future Examination should he then fail in obtaining the minimum number of Marks in any subject in which he has previouly qualified.*

CLASS II.

(*Any two subjects may be taken up.*)

1. MATHEMATICS (Higher Course). (In all the following subjects great importance will be attached to accuracy in numerical results):—Further questions and problems on the subjects of the obligatory examination:—	
(*a.*) Statics, problems and exercises will be extended to friction; the graphical or geometrical method of treating such problems should be studied as well as the analytical; no application of the differential calculus to Statics will be required	2,000
(*b.*) Dynamics, problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work ..	
(*c.*) Analytical Geometry, problems on straight line and circle	
(*d.*) Conic Sections, elementary properties, with easy problems both on the analytical and geometrical methods ..	

The other subjects are the same as laid down in Class II. for Sandhurst, beginning at History [3].

CLASS III.

(*May be taken up by all.*)

1. FREEHAND DRAWING	500

APPENDIX XIII.

EXTRACT from a letter received from the Head Master of the Military and Civil Department of Cheltenham College.

"I should like to call attention to the papers in higher mathematics. It is gradually becoming more difficult for candidates, other than boys of very considerable mathematical ability (a very small number), to score marks in this subject. Candidates who now gain from 30 to 40 per cent. would have gained from 50 to 60 per cent. two or three years ago. The result of this is that candidates take other subjects instead—a fact, in the case of Woolwich boys, much to be deplored.

"Last June, out of the 50 successful Woolwich candidates, only 30 took higher mathematics.

"I see that last June, of the 50 successful Woolwich candidates—

6	gained	over	half	marks in higher mathematics.
7	"	"	"	history.
14	"	"	"	chemistry.
17	"	"	"	German.
41	"	"	"	French.
37	"	"	"	Latin.

These facts speak for themselves.

"To particularize: last June, in analytical geometry, three questions only were given. This is an extremely important subject, and one requiring more time to be devoted to it than any other branch of mathematics."

Civil Service Commission,
20th November, 1893.

Sir,

With reference to Sir W. Lennox's letter of the 13th September last, forwarding an extract from a letter received from the Head Master of the Military and Civil Department of Cheltenham College, making certain complaints regarding the examination in higher mathematics for the Royal Military Academy, Woolwich, I am directed by the Civil Service Commissioners to transmit, for the information of his Royal Highness the Commander-in-Chief, copy of a memorandum which deals in detail with the questions thus raised.

It will be seen from the statistics given in this memorandum that while it is clear that the number of candidates offering higher mathematics has of late considerably decreased, there is no reason to think that this falling off is due to increased difficulty in the mathematical examination itself. On the contrary, the change appears to have resulted from the alterations in the maxima assigned to the different subjects in Class II., which came into force in 1891, whereby an equal value was assigned to all subjects in Class II.

The considerations which induced the War Office to make this change are given in Sir R. Biddulph's confidential memorandum, which accompanied his letter, 7680/1517 of 19th July, 1888, and though it would be easy, if it were desired, to suggest means by which greater value should be attached to knowledge of higher mathematics, the Commissioners would hesitate to suggest any such means so long as it is understood that Sir R. Biddulph's memorandum above referred to giving the principle on which the whole of the existing scheme was constructed, correctly represents the view taken by the authorities of the War Office on the question.

I have, &c.,
J. S. LOCKHART.

The Director-General
of Military Education.

Woolwich Higher Mathematics.

The following table shows that it is true that an increasing number of the successful candidates choose some alternative subject in the place of higher mathematics:—

Table A.

Table showing the number of Candidates who have been successful for the Royal Military Academy at the last 15 examinations without taking Higher Mathematics.

Examination.	Number of successful candidates.	Number of successful candidates who did not take Higher Mathematics.
June, 1886	50	0
November, 1886	50	2
June, 1887	50	2
November, 1887	120	6
June, 1888	60	2
November, 1888	80	6
July, 1889	60	2
November, 1889	60	2
June, 1890	60	3
November, 1890	60	1
June, 1891	60	16
November, 1891	50	13
June, 1892	50	15
November, 1892	50	20
June, 1893	50	20

The great increase has manifestly taken place in the last 2½ years. From about 4 per cent. for the first 10 examinations, the number who omit to take higher mathematics has risen to 34 per cent. on the average of the last five examinations, and in the last two examinations it has risen to 40 per cent.

The reason for this change, alleged in the enclosure to the War Office letter, is increased severity in the marking of the subject.

"Candidates, who now gain from 30 to 40 per cent., would have gained from 50 to 60 per cent. two or three years ago." It is not possible to find any individual candidate who has been under examination for so long a period as three years, so that this statement cannot be tested by individual experience, but the average marks in higher mathematics obtained at successive examinations have been compared. The following table shows the result for the last 15 examinations:—

Table B.

Examination.	Number of candidates.	Average mark per cent.
June, 1886	76	23·3
November, 1886	67	24·9
June, 1887	91	15·9
November, 1887	123	16·7
June, 1888	96	21·0
November, 1888	83	18·9
July, 1889	78	30·8
November, 1889	107	28·8
June, 1890	145	27·4
November, 1890	118	27·9
June, 1891	77	30·6
November, 1891	55	37·0
June, 1892	80	34·6
November, 1892	98	29·9
June, 1893	112	29·5

If this table is divided into three equal periods of five examinations, and the results are summarized, the following figures are obtained:—

In the first five examinations the average mark was 20 per cent.
„ second five „ „ 27 „
„ third „ „ „ 32 „

Though it is thus manifest that the marks obtained by the average candidate have been steadily rising, it must be remembered that in the third of these periods many candidates have ceased to take higher mathematics, as is shown in Table A, and that.

these being presumably the least able competitors in mathematics, the average candidate is not quite constant in quality, but has risen in the scale during the last five examinations.

If, however, instead of taking the average of all the candidates, only the first 25 who took higher mathematics in each examination are considered, this source of error will be absent, and the average mark so found may be taken as representative of a candidate of nearly constant mathematical ability. Table C gives the result.

TABLE C.

The average Marks of the first 25 Candidates in Mathematics.

Examination.	Average mark per cent.
June, 1886	43·8
November, 1886	44·1
June, 1887	34·3
November, 1887	39·3
June, 1888	43·0
November, 1888	34·4
July, 1889	51·2
November, 1889	49·4
June, 1890	50·4
November, 1890	47·9
June, 1891	47·5
November, 1891	50·2
June, 1892	55·4
November, 1892	61·4
June, 1893	50·6

If the table be divided, as before, into three equal periods, it will be found that—

In the first five examinations the average mark was 41 per cent.
„ second five „ „ 47 „
„ third „ „ „ 53 „

The average mark still rises through each of these periods, though not in the same proportion as when the whole body of candidates is under consideration. A glance at these figures is sufficient to negative the proposition that "Candidates who now gain from 30 to 40 per cent., would have gained 50 to 60 per cent. two or three years ago."

This result accords with the Commissioners' estimate of the difficulty of the papers set in higher mathmetics during this period. Considerable care has been exercised to maintain an uniform standard.

The next reason, alleged in the enclosure under consideration, for the diminution in the number of candidates taking higher mathematics, is the severity of the treatment of this subject as compared with other subjects with which it is alternative. To account for the fact, it is clearly not sufficient to prove that higher mathematics is more severely treated than other subjects, it is necessary to show that this comparative severity is of recent growth. Accordingly the figures quoted by the War Office enclosure for June, 1893—that is the number of those candidates who obtain more than half marks in various subjects—must be ascertained for previous examinations also, before any conclusion can be deduced. At the same time if a real comparison is to be made, it is useless to include subjects belonging to Class I., which are not really alternative with higher mathematics, *e.g.*, Latin, French, and perhaps German also. The tables for all the subjects named, for the three periods of five examinations, are given, but it is proposed only to compare higher mathematics with English history and chemistry.

TABLE D.

These tables give the number of successful candidates who get half marks or over.

First Period.

Examination	July, 1886.	Nov., 1886.	June, 1887.	Nov., 1887.	June, 1888.	Total.
Number of successful candidates	60	60	60	120	60	360
Higher mathematics	7	5	3	4	7	26
English history	Not a subject of examination.					
Chemistry	..	5	1	3	3	12
German	6	12	8	14	9	49
French	23	15	23	3	30	94
Latin	7	15	8	9	13	52

Middle Period.

Examination	Nov., 1888.	July, 1889.	Nov., 1889.	June, 1890.	Nov., 1890.	Total.
Number of successful candidates ..	80	60	60	60	60	320
Higher mathematics	2	11	9	12	6	40
English history	2	3	3	5	1	14
Chemistry or physics	6	5	14	8	15	48
German (obligatory and optional) ..	28	29	12	27	29	125
French (obligatory and optional) ..	61	45	39	56	53	254
Latin	25	30	11	18	17	101

Last Period.

Examination	June, 1891.	Nov., 1891.	June, 1892.	Nov., 1892.	June, 1893.	Total.
Number of successful candidates ..	60	50	50	50	50	260
Higher mathematics	9	12	14	13	7	55
English history	2	4	2	6	7	21
Chemistry	7	7	8	15	14	51
German (optional)	9	17	8	22	14	70
French (optional)	3	6	5	2	3	19
Latin	24	24	33	38	37	156

A comparison of last two periods, between which the great change complained of has arisen, shows that in the five examinations, from November, 1888, to November, 1890, during which there were 320 successful candidates in all, *i.e.*, during the middle period—

40 obtained half marks in higher mathematics.
14 „ „ English history.
48 „ „ chemistry.

In the five examinations from June, 1891 to June, 1893, during which there were 260 successful candidates, *i.e.*, during the last period—

55 obtained half marks in higher mathematics.
21 „ „ English history.
51 „ „ chemistry.

The correspondence between these figures, that is the approximate equality, for each period, of the numbers for higher mathematics and chemistry, and the constant ratio (a little less than 3·1) as between higher mathematics and English history, is remarkable, and altogether disposes of the suggestion that a change in the severity of the marking of higher mathematics is a *vera causa*.

As a sort of rider to this last suggestion, the writer of the enclosure puts forward a particular statement, that in June, 1893, there were only three questions in analytical geometry. It is true that five questions would have been the normal number (and if one question be included which could be solved either by geometrical conics, or by analytical geometry, there were four questions in June), but the writer can hardly contend that this had a depressing effect upon the mathematical marks as a whole.

It is clear that in order to find the true reason for the change a wider view of the circumstances of the examination must be taken.

A reference to the great increase between November, 1890, and June, 1891, shown by Table A, in the number of candidates omitting to take higher mathematics, leads to the conclusion that there must have been some considerable difference of conditions in these two examinations to account for this change.

This is in fact a half year in which the regulations for Woolwich were altered. There have been five examinations since the change; there were another five examinations udner the old regulations, immediately before the change; and the tables, which have been already given in this memorandum, include a previous period of five examinations under still older conditions. Thus the effect of all three sets of regulations can be fairly estimated. Table E shows the range of examination, and the maxima for each subject in the three periods, namely, June, 1886, to June, 1888; November, 1888, to November, 1890; June, 1891, to June, 1893.

Table E.

First Period—June, 1866.

The subjects of the further examination and the maximum number of marks obtainable for each subject will be as follows:—

	Marks.
1. Mathematics, viz., further questions and problems on the subjects of the qualifying examination, and the elements of the following subjects:—Theory of equations; analytical geometry; conic sections; solid geometry; differential and integral calculus; statics; and dynamics ..	4,000
N.B.—In all the subjects great importance will be attached to accuracy in numerical results.	
2. English; English literature, limited to specified authors; and English history, limited to certain fixed periods, the authors and periods being notified beforehand	2,000
3. Classics, viz. { Latin	2,000
{ Greek	2,000
4. French; the examination to be partly colloquial	2,000
5. German; the examination to be partly colloquial	2,000
6. Any one of the following languages at the option of the candidate, viz.:—Italian, Russian, Spanish, or Hindustani; the examination to be partly colloquial	2,000
7. Experimental sciences, viz.:—(*a.*) chemistry and heat; or (*b.*) electricity and magnetism	2,000
8. General and physical geography, and geology	2,000
9. Drawing, freehand	1,000
Of these nine subjects candidates will not be allowed to take up more than four, exclusive of drawing.	

Middle Period—November, 1888.

Further Examination.

The subjects of the Further Examination, and the maximum number of marks obtainable for each subject, will be as follows:—

Class I.

(1.) Mathematics:—	Marks.
Part I. Obligatory.—Algebra up to and including the binomial theorem; the theory and use of logarithms; Euclid, Books I. to IV. and VI.; Plane trigonometry up to and including the solution of triangles; Mensuration; Statics: the equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers; Dynamics: uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. (Analytical methods of solution will not be required.)	3,000
N.B.—A thorough knowledge of each of the above branches of mathematics will be required.	
Part II. Optional.—Further questions and problems on the subjects of the Preliminary Examination; Statics; Dynamics; the Elements of Analytical Geometry; Conic Sections	3,000
(2.) Latin	3,000
(3.) French (600 for colloquial)	3,000
(4.) German (600 for colloquial)	3,000

CLASS II.

	Marks.
(1.) Greek	2,000
(2.) English History :—	
One general paper. One paper limited to a fixed period of which notice will be given ..	2,000
(3.) Experimental sciences, viz. :—(*a.*) the elements of inorganic chemistry; (*b.*) electricity, magnetism, heat and light	2,000
(4.) Physical geography and geology, chiefly economic	2,000

CLASS III.

(1.) English composition, tested by the power of writing an essay or letter	500
(2.) Drawing, freehand	500
(3.) Drawing, geometrical	500

Of these subjects (in addition to the obligatory mathematics) candidates will not be allowed to take up more than four, exclusive of those in Class III., nor will they be allowed to take up more than one from Class II.; but they may, in addition, take up all the subjects in Class III. There will be a practical examination on subjects 3 (*a*) and (*b*), and 4, of Class II.

Third and last Period—June, 1891.

The subjects of the Further Examination, and the maximum number of marks obtainable for each subject, will be as follows:—

CLASS I. (Obligatory.)

(1.) Mathematics—A thorough knowledge of each of the following four branches of mathematics will be required :—

	Marks.
(*a.*) Algebra, up to and including the binomial theorem; the theory and use of logarithms	
(*b.*) Euclid, Books I. to IV. and VI.	
(*c.*) Plane trigonometry, up to and including solution of triangles; and mensuration	3,000
(*d.*) Statics and Dynamics—Statics: the equilibrium of forces acting in one plane and of parallel forces, the centre of gravity, the mechanical powers—Dynamics: uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. (Analytical methods of solution will not be required) ..	
(2.) Latin	2,000
(3.) French or German (200 for colloquial)	2,000

CLASS II. (Any two subjects may be taken up.)

(1.) Higher mathematics—(In all the following subjects great importance will be attached to accuracy in numerical results) :—	
Further questions and problems on the subjects of the obligatory examination	
Statics: problems and exercises will be extended to friction. The graphical or geometrical method of treating such problems should be studied as well as the analytical. No application of the differential calculus to Statics will be required	2,000
Dynamics: problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work	
Analytical Geometry: problems on straight line and circle	
Conic Sections: elementary properties, with easy problems, both on the analytical and geometrical methods	
(2.) German or French, as alternating with subject (3) in Class I. (400 for colloquial)	2,000
(3.) Greek	2,000

	Marks.
(4.) English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
(5.) Chemistry. Elements of inorganic chemistry	2,000
(6.) Physics. Elementary properties of electricity, magnetism, heat, light, and sound	2,000
(7.) Physical geography and geology; chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

In each of these subjects (5), (6), and (7), the examination will be partly practical.

CLASS III. (All three subjects may be taken up.)

(1.) English composition, tested by the power of writing an essay or letter	500
(2.) Drawing, freehand	500
(3.) Drawing, geometrical, including practical plane geometry, and the construction of scales	1,000

It will be seen from this that—

Up to June, 1888, the maximum for higher mathematics was 4,000
From Nov. 1888, to Nov. 1890 „ „ 3,000
„ June, 1891 to June, 1893 „ „ 2,000

It will be observed that the period of the second and latest change in maximum (namely, from 3,000 to 2,000) in November, 1890 to June, 1891, is exactly that in which the number given in Table A of candidates not taking higher mathematics made its sudden leap, and the inference naturally follows that the change in maximum was the cause of the increase in the number of these candidates.

But it must first be explained why the first diminution in maximum from 4,000 to 3,000 (between June and November 1888) produced scarcely any effect in Table A. For this obligatory mathematics, English composition, and freehand and geometrical drawing, which throughout all 15 examinations could be taken up in addition to a fixed number of subjects, may be excluded from consideration, and attention may be confined to those subjects only in which choice was permissible. Now, if A be taken to represent a candidate offering higher mathematics, and B a candidate not offering higher mathematics, it will be found that up to June, 1888—

First Period—	Marks.
A could obtain marks in the fixed number of subjects alluded to out of a maximum of	10,000
B could obtain marks in the fixed number of subjects alluded to out of a maximum of	8,000

From November, 1888, to November, 1890.

Second Period—	
A could obtain marks in the fixed number of subjects alluded to out of a maximum of	12,000
B could obtain marks in the fixed number of subjects alluded to out of a maximum of	11,000

From June, 1891, to June, 1893.

Third Period—	
A could obtain marks in the fixed number of subjects alluded to out of a maximum of	8,000
B could obtain marks in the fixed number of subjects alluded to out of a maximum of	8,000

It seems clear, then, that while higher mathematics retained an advantage, whether 2,000 or 1,000, in point of maximum, is was taken by nearly all candidates; but that as soon as it was placed on an equality with other subjects many competitors preferred to choose one of these other subjects.

It will be noticed that after the end of the First Period the syllabus of higher mathematics was considerably restricted. This did not have, nor was it expected to have, a large influence on the number taking higher mathematics, nor on the average mark obtained. It is not on the range in mathematics, but on the difficulty of the questions—especially the number of "riders"—that the severity of the examination chiefly depends. But, so far as this restriction operated, it would tend to counteract the effect of diminishing the maximum offered for higher mathematics.

The conclusions to which these considerations point are—

Firstly: That the papers set in higher mathematics of late years have been easier than former papers, and would, *cæteris paribus*, have tended to encourage the choice of higher mathematics as a subject.

Secondly: That the alteration of maximum has led to the diminution of the number of candidates taking higher mathematics.

The suggestion "to increase the number of papers in higher mathematics" would be of no value under existing conditions. For if we double the number of papers, and halve the maximum for each, how is there any advantage to the candidates as a whole? Some may do a little better on four papers than on two, and others a little worse; but the average mark remains unaltered.

APPENDIX XIV.

From the Professor of Mathematics to the Governor, Royal Military Academy, Woolwich.

Sir, 27th November, 1893.

Having been requested to express an opinion as to the advisability of adding to the mathematical subjects of entrance examination, I have no hesitation in saying that I consider the present subjects are amply sufficient as a preparation for the course at the Royal Military Academy, and that, moreover, they are as much as could be expected of candidates, with the present restrictions as regards age. What is wanted is not more subjects, but more thorough knowledge of the subjects as they are.

I have, &c.,
H. HART.

From Major F. A. Curteis, Professor of Artillery, to the Assistant Commandant, Royal Military Academy, Woolwich.

Sir, 25th November, 1893.

I have the honour to report, for the information of the Governor of the Royal Military Academy, that I do not consider that the Cadets, as a body, show any deficiency of ability in mastering fresh subjects, but I consider that they are not sufficiently grounded before joining in the working of logarithms.

I have, &c.,
F. A. CURTEIS, *Major.*

From the Acting Professor of Fortification to the Assistant Commandant, Royal Military Academy, Woolwich.

Sir, 27th November, 1893.

With reference to the question whether Cadets have shown deficiency in either knowledge of particular subjects which are necessary for their career at Woolwich, and which they ought reasonably to be expected to have acquired before joining, or inability to master fresh subjects, I have the honour to report that when Cadets join they are generally untidy draughtsmen, although they have to qualify in their preliminary examination in geometrical drawing, and that considerable time has to be spent in teaching them how to use a paint brush, and to put on a flat wash. Otherwise we have no complaint.

I have, &c.,
H. C. W. BROWNRIGG, *Captain, R.E.*

From Major E. S. May, R.A., Professor of Military Topography, to the Assistant Commandant, Royal Military Academy, Woolwich.

Sir, 25th November, 1893.

In accordance with your memorandum, dated the 24th instant, I have the honour to report that the Cadets generally arrive here with a defective knowledge of scales, and that if they knew more of them before commencing work at the Academy it would materially help their progress in military topography. As regards subjects which they take up here for the first time, I consider they display considerable ability and intelligence.

I have, &c.,
E. S. MAY, *Major, R.A.*

From the Professor of Tactics to the Assistant Commandant, Royal Military Academy, Woolwich.

Sir, 25th November, 1893.

With reference to your request that I should furnish you with a report upon the Cadets under my instruction, I have the honour to state that none of the 1st and 2nd Classes (who alone come under me) are deficient either in the ability or previous training necessary to enable them to acquire a sufficient knowledge of tactics, and all appear interested in that subject.

I have, &c.,
H. D. BUCHANAN-DUNLOP, *Lieut.-Colonel.*

From the Professor of Chemistry and Physics to the Assistant Commandant, Royal Military Academy, Woolwich.

Sir, 24th November, 1893.

Respecting the communication made to me this day on the physical and mental state of Gentlemen Cadets, really their preparedness for undertaking the course of studies at the Royal Military Academy, observation has shown that those gentlemen who have taken up *any* physical subject of study at entrance are, as a rule, five times better placed for the same amount of work whilst in the Academy than those gentlemen to whom physical science is a new and strange subject.

There are of course some few startling exceptions to this as the examinations of last 4th Class testify. But these are exceptions and can be accounted for in that extra attention was given to these cases by the gentlemen themselves in their voluntary time and extra attention was given to them.

The rule still holds good that *ever so slight* an acquaintance with physics at entrance would be, and has shown itself to be, a great advantage to the Cadet whilst under training here.

I may say that a considerable amount of extra work is caused by the very *unequal states* of preparedness of the gentlemen joining, and this is a distinct loss of energy as regards teaching. This difference is felt as far as the 2nd Class with great distinctness, and even shows itself in the ready or unready thinking capacity of the 1st Class.

A very low minimum of acquaintance with physics would satisfy us at entrance, as very little indeed is required to stimulate a faculty of thinking. This is really *all* we require.

I have, &c.,
W. R. EATON HODGKINSON.

APPENDIX XV.

The difficulty of obtaining equal marking by different examiners in different subjects has long since been recognized in public schools, and some mode of overcoming this difficulty is usually employed in such places.

The methods adopted are somewhat various. That which is known as the "range system" is the most satisfactory if properly carried out. By its means the relative values of average work in a number of subjects can be very fairly preserved constant, and free from the very wide variations that otherwise often occur, and at the same time it permits work of special excellence to have its extra value, and very bad work to be duly penalized.

The following will give an idea of the "range system," which is also further illustrated by an example:—What we may call the mean maximum of the marks given by the examiners in each subject is found by dividing the total of the marks of the x candidates who get highest marks by x (x should equal about one-tenth of the total number of candidates who take the subject), and the mean minimum by similarly dividing the total of the x candidates lowest marks by x. The difference between the mean maximum and mean minimum then gives the "range" of the marks in each subject.

Let us suppose that in the subjects A, B, C the ranges as above defined are found to be—

A.	B.	C.
1,500 to 500 ..	2,500 to 1,000 ..	500 to 200

and that the allotted marks of the subjects are: for A 2,000; for B 3,000; for C 1,000.

The marks in each subject must then be so multiplied or divided that the range in each case bears the same ratio to the allotted marks of the subject, and that the mean maximum mark and mean minimum mark respectively also bear the same ratio to the allotted mark in each case.

Thus, in the above instance, we should have—

	A.	B.	C.
Allotted mark ..	2,000	3,000	1,000
Mean maximum ..	1,000	1,500	500
Mean minimum ..	400	600	200

Might not such a system be applied with advantage to the examinations for Woolwich and Sandhurst?

Of course, no such system could be successfully applied to subjects which are taken up by very small numbers of candidates. In these, considerable variations in the value of the work done are certain to occur, and hence for them no automatic system can be employed to regulate the inequalities in the examining. I may point out, however, in regard to the optional subjects generally, that undue severity or leniency in the marking of any such subject soon shows itself by its effect on the proportion of candidates offering the subject. For example, in the case of the examination for Woolwich, three of the six optional subjects, viz., (1) advanced mathematics, (2) German, and (3) experimental science, are of more or less value in the subsequent Woolwich Course. Hence these three subjects would naturally be taken up much more frequently by Woolwich cadets than Greek, history, or physical geography, and in the event of, let us say, history being very largely taken up by the candidates for Woolwich, or of, let us say, German being abandoned, without any assignable cause, such as a change in the course of work or in the system of marking at Woolwich, it would indicate that the examining in the subject had become too lenient or too severe as the case might be, and an enquiry into the matter by the Commissioners would be desirable; whilst, on the other hand, in the Sandhurst competitions, where no such special reason exists to induce candidates to select these three subjects, the occurrence of a rush on German or science, and a wholesale abandonment of Greek, would strongly suggest inequalities in the marking of these subjects.

The adoption of an equitable system of marking of this kind would give a little extra trouble to the clerical staff of the Commission, but it would have very great advantages. In the first place it would render the relative value of average work in most of the subjects much more nearly constant than at present, by removing to a great extent the various disturbing causes.

Secondly. It would no longer be important for the examiners to attempt the impossible task of setting papers of exactly equal degrees of difficulty in the very various subjects, and it would be no longer necessary for any examiner to attempt to mark evenly with his colleagues, nor to set papers of questions of exactly equal difficulty from year to year. It would only be necessary that each examiner should

set reasonable papers and award marks on each occasion equitably in proportion to the relative value of the work done in his own subject. He might be more severe at one examination and less so at another, and no injustice would be done provided that his marks were consistent with each other on each separate occasion.

And, finally, as a consequence of the above advantages there would be this great public gain. That as the examiners would be free to vary the character and standard of their papers more than at present, they could consequently much better distinguish the more able candidates from those who have simply been well trained for particular examinations by teachers who have studied and mastered the character of the papers set in those examinations. Thus one of the greatest evils of the competitive system would be done away with, and sound teaching greatly encouraged, both in the case of schools and of private tutors.

NOTE.—Though under such a system, the character and standard of papers might be varied within moderate limits, without any injustice to candidates, as already explained, it would not prevent injustice arising from the examiners persistently adopting a low standard in examining any one subject.

Unfairness might still occur in comparing optional subjects from this cause, for the subjects would count equally, whilst one would take more time than the others for its preparation.

This, however, could be detected in other ways as already explained.

An Example of the Method of Ranging Marks.

Subject A is supposed to have been marked liberally on easy questions.

Subject B is supposed to have been marked severely on more difficult questions. Hence the range of the A marks (114) is small, and they would not tell so much in a competition as those awarded for Subject B; as, though the allotted maximum for B is smaller (175 as compared to 250), the range (155) of the marks given by the examiners is much greater in this case, which leads to the result that the subject meant to be of lower value has been made of higher value.

Table 1 gives the original marks, with calculations of mean maximum and mean minimum for each.

TABLE 1.

A.				B.			
No. of Candidate.	Marks. Maximum = 250.	Three Highest.	Three Lowest.	No. of Candidate.	Marks. Maximum = 175.	Three Highest.	Three Lowest.
1	234	..	..	1	160	160	..
2	231	..	..	2	94	..	..
3	180	..	..	3	170	170	..
4	191	..	..	4	70	..	..
5	219	..	..	5	100	..	..
6	250	250	..	6	112	..	..
7	197	..	..	7	30	..	..
8	243	243	..	8	104	..	..
9	171	..	..	9	108	..	..
10	210	..	..	10	80	..	..
11	225	..	..	11	110	..	..
12	178	..	..	12	90	..	..
13	225	..	..	13	93	..	..
14	250	250	..	14	95	..	..
15	193	..	..	15	40	..	..
16	221	..	..	16	102	..	..
17	201	..	..	17	20	..	20
18	197	..	..	18	135	..	..
19	166	..	166	19	166	166	..
20	213	..	..	20	101	..	..
21	219	..	..	21	5	..	5
22	82	..	82	22	60	..	..
23	155	..	155	23	110	..	..
24	225	..	..	24	5	..	5
	Mean	248	134		Mean	165	10
	Range, 114 in 250				Range, 155 in 170		

Table 2 gives these same marks after those for Subject B have been ranged, so that their mean maximum, mean minimum, and range bear the same ratios respectively to the allotted maximum (175) that the mean maximum, mean minimum and range of the marks for A bear to the maximum mark (250) of that subject.

These marks now make the two subjects count very nearly in proportion to their intended value as expressed by the *maxima*, 250 and 175, allotted to them.

Special excellence of any candidate's work gives him an advantage, for he may get more marks than the 250, or 175, as the case may be.

The method of ranging is as follows:—

If the range be too great a suitable constant is added to every mark on the list If it be too small it is increased by deducting a constant. The marks so arrived at are then all reduced or increased in proportion, so that the new mean maximum shall have the desired value. This may be done by calculation, or, more readily, by means of a "mark reducer."

TABLE 2.

A.		B.	
Number of Candidate.	Marks. Maximum = 250.	Number of Candidate.	Marks. Maximum = 175.
1	234	1	172
2	231	2	137
3	180	3	177
4	191	4	125
5	219	5	140
6	250	6	146
7	197	7	104
8	243	8	142
9	171	9	144
10	210	10	130
11	225	11	145
12	178	12	135
13	225	13	137
14	250	14	138
15	193	15	109
16	221	16	142
17	201	17	99
18	197	18	159
19	166	19	174
20	213	20	141
21	219	21	91
22	82	22	120
23	155	23	145
24	225	24	91
Mean maximum, 248 Mean minimum, 134 Range, 114 Ratio, 250 to 248 = ·99 Ratio, 250 to 194 = ·53		Mean maximum, 174 Mean minimum, 94 Range, 80 Ratio, 175 to 174 = ·99 Ratio, 175 to 94 = ·53	

W. A. SHENSTONE.

APPENDIX XVI.

From the Professor of Fortification, Royal Military College, to the Governor, Royal Military College.

Royal Military College,
Sir, 28th November, 1893.

In obedience to your instructions, I have the honour to submit the following report on the general intelligence of the Gentlemen Cadets recently admitted to this college, and on their educational qualifications, with reference to the study of Fortification:—

1. I am of opinion that the average general intelligence of these young men is equal to the average of recent years; at the same time it is undoubtedly true that many cadets admitted as Queen's Cadets and Honorary Queen's Cadets are below the general standard both in knowledge and intelligence, as may be seen from the fact that, out of 12 cadets who failed to qualify at the last term examination for remove from the 3rd Division to the 2nd Division, 7 were Queen's or Honorary Queen's Cadets, *i.e.*, 58 per cent. Yet the Queen's Cadets only form about 15 per cent. of the total strength of the division.

2. As regards special educational acquirements for the study of Fortification, I put them as—

(*a.*) Mathematics.

(*b.*) Geometrical Drawing.

With regard to (*a*), their attainments meet all the imperative requirements of this branch of study. But a more thorough acquaintance with the VI. Book of Euclid and some knowledge of the laws of motion and the action of gravity would be an advantage.

As regards subject (*b*), Geometrical Drawing, I find a great deficiency. The cadets have been taught to do tricks (so to speak); they have not been educated in it. Of scales they have but a slight knowledge, and they rarely draw a scale correctly on first joining.

One of the Instructors reports: "As regards the knowledge of Geometrical Drawing shown on joining here by my 3rd Division, it is of very little value, and shows distinct evidence of cramming. . . . None of the cadets in my class had a competent knowledge of the simplest matters in the subject, such as the use of the Marquois scales and the protractor. I find that the marks gained in the entrance examination in this subject afford no reliable index to the knowledge (or want of it) possessed by the cadets."

Another Instructor states: "I do not consider that any of the Gentlemen Cadets of the 3rd Division joined with any knowledge of Geometrical Drawing likely to be of value to them for the work they are required to do here. A certain number were acquainted with the ordinary problems in plane geometry, and some few were able to construct a simple scale."

Two other Instructors report their classes as having a "fair" knowledge of this subject on joining.

Another Instructor reports: "As far as scales are concerned very few showed ability, and all were inaccurate. The proper use of the Marquois scales was only known to six" (*i.e.*, to six cadets of his class of 23). "One Gentleman Cadet informs me that the week previous to his examination he worked out no less than 600 of these problems" (*i.e.*, geometrical problems). "It appears to me that all their knowledge is crammed."

3. The only remedy I can suggest is to make the examination in Geometrical Drawing more searching, and to insist on a qualifying minimum of marks being made both in scale-drawing and in plane geometry. Cramming cannot be done away with; but by setting problems requiring thought in the solution the crammers will be forced to educate their pupils, and not merely teach them a lot of examination tricks.

I have, &c.,
W. H. CHIPPINDALL, *Major, R.E.*

From the Professor of Military Topography to the Governor, Royal Military College.

Royal Military College,
Sir, 29th November, 1893.

With reference to the report you have called upon me to furnish, I have the honour to state—

1. I am most strongly of opinion that some steps should be taken to ensure cadets having a proper knowledge of Euclid before entering the College, more particularly as regards the VIth Book, in so far as it relates to similar triangles. This knowledge is required by cadets as they progress in military topography and map reading; and although it is laid down in the Syllabus for Entrance Examination, I have come across a very large number of cadets who have never "studied" their Euclid properly. It appears to have been learnt by heart without understanding the subject.

2. A great deal of time is expended here in *teaching scales*, although this is also laid down as a subject that has to be passed at the Entrance Examination. I would here mention the many various ways in which scales are taught by schools and crammers. It is quite possible in examining a couple of hundred papers to find probably about 50 or more different ways of calculating, drawing, numbering, and lettering a scale. This, in my opinion, might be avoided. I beg to point out that I think I could make these points very much clearer if I appeared personally before the Committee.

I have, &c.,
G. ALBAN LEWES, *Lieut.-Colonel.*

From the Professor of Tactics to the Assistant Commandant, Royal Military College.

Royal Military College,
Sir, 27th November, 1893.

With reference to the letter of the 23rd instant from the Under Secretary of State for War, addressed to the Governor, Royal Military College, I have the honour to state, for his information, that the cadets do not show any deficiency in general education unfitting them for the instruction in the branch with which I am connected.

Tactics, military administration, and military law, being purely professional subjects, cannot be touched by a general education such as successful candidates could fairly be expected to have acquired.

I have, &c.,
JOHN ADAM FERGUSON, *Lieut.-Colonel.*

APPENDIX XVII.

RETURN of the Number of Candidates Nominated, &c., to Naval Cadetships during the five years, 1888–92.

	Total number of candidates nominated.	Cancelled or withdrew before medical examination.	Found physically unfit.	Attended literary examination.	Number of cadetships competed for.
June, 1888	143	30	17	96	57*
November, 1888	117	23	23	71	46
February, 1889 .. .. (Supplementary exam.)	32	4	2	26	14
June, 1889	138	28	22	88	49†
November, 1889 ..	181	33	20	128	66
June, 1890	189	36	24	129	58*
November, 1890	178	31	25	122	57
June, 1891	185	25	18	142	60*
November, 1891	183	33	18	132	61*
June, 1892	211	33	25	153	60†
December, 1892	209	25	27	157	56

* These numbers in each instance include one Service cadetship not subject to competition.

† Including two Service cadetships not subject to competition

Statistical Return of Candidates physically examined for entry into Her Majesty's Navy, January, 1888, to June, 1893.

	Naval Cadets.			Assistant Clerks.		
Year.	Examined.*	Fit.	Unfit.	Examined.	Fit.	Unfit.
1888	212	171	41	136	131	5
1889	293	248	45	142	133	9
1890	305	256	49	145	127	18
1891	328	287	41	98	87	11
1892	368	314	54	116	108	8
1893 (to June 30.)	172	156	16	79	70	9
	1,678	1,432	246	716	656	60

* The Naval Cadets examined by the Medical Director-General include others than those nominated to *compete*, namely, Colonial candidates, and candidates from the training ships "Worcester" and "Conway."

	Engineer Students and Probationary Assistant Engineers.			Chaplains and Naval Instructors.		
Year.	Examined.	Fit.	Unfit.	Examined.	Fit.	Unfit.
1888	Nil	..	..	17	16	1
1889	11	8	3	6	4	2
1890	15	9	6	10	6	4
1891	18	15	3	8	7	1
1892	14	10	4	11	9	2
1893 (to June 30).	15	10	5	9	8	1
	73	52	21	61	50	11

	Medical Officers.			Officers of the Royal Marines.		
Year.	Examined.	Fit.	Unfit.	Examined.	Fit.	Unfit.
1888	37	35	2	12	12	..
1889	76	70	6	23	18	5
1890	55	50	5	39	37	2
1891	67	63	4	23	19	4
1892	63	54	9	12	11	1
1893 (to June 30.)	46	37	9	8	8	..
	344	309	35	117	105	12

1. The physical examination for entry into the Royal Navy is conducted in accordance with Articles 1153 and 1154 of the Queen's Regulations and Admiralty Instructions, 1893, with certain modifications in the cases of gentlemen entering in the ranks of Medical Officers, Chaplains, or Accountant Officers. Marine Officers have also certain defects in powers of vision allowed.

2. The commoner causes of unfitness amongst candidates for the Executive and Engineer ranks are shown in the following extract from a form supplied for the guidance of parents and guardians:—

(1.) A weak constitution, imperfect development, physical weakness, either hereditary or from chronic disease, wounds, or injuries.

(2.) Skin disease, unless temporary or trivial.

(3.) Malformation of the head, deformity from fracture or depression of the bones of the skull, impaired intellect, epilepsy, paralysis, or impediment of speech.

(4.) Blindness or defective vision, imperfect perception of colours, fistula lachrymalis, or any chronic disease of the eye or eyelids. Full normal sight is required as determined by Snellen's tests, each eye being separately examined.

(5.) Impaired hearing, or discharge from one or both ears, or any disease of the external ear.

(6.) Disease of the bones of the nose or of its cartilages, and nasal polypus.

(7.) Disease of the throat, palate, or tonsils; many unsound teeth, unhealthy gums, scrofulous diseases of the glands of the throat or neck, external cicatrices from scrofula.

(8.) Functional or organic disease of the heart or blood vessels, deformity or contraction of the chest, phthisis, hæmoptysis, bronchitis, asthma, dyspnœa, aphonia, chronic cough, or any symptom of lung disease or tendency thereto.

(9.) Undue swelling or distension of the abdomen, disease or enlargement of the liver, spleen, or kidneys. Rupture, weakness or distension of the abdominal rings; any disease of the bladder or incontinence of urine.

(10.) The existence of any defect of the genital organs, or of varicocele.

(11.) Any disease of the stomach or bowels.

(12.) Paralysis, weakness, impaired motion, or deformity of the upper or lower extremities, from whatever cause; a varicose state of the veins, especially of the leg. Bunions, distortion or malformation of the feet, fingers, or toes.

(13.) Distortion of the spine, of the bones of the chest, or pelvis, from injury or constitutional defect.

No person is to be admitted into Her Majesty's Service unless he has had small-pox, or been vaccinated, and he is to be reported fit only on condition that, if he should be successful in the competition, before joining Her Majesty's ship "Britannia" he is to produce a certificate of re-vaccination since infancy.

In the event of the preliminary private examination making it apparent that a candidate is not likely to pass the subsequent official physical examination, the parent or guardian is requested to inform the Admiralty of the fact without delay, in order that another candidate may be nominated.

3. The ages of the candidates are as follows:—

Naval Cadets, 12½ to 14½ (now 13 to 14½).
Assistant Clerks, 16 to 18.
Medical Officers, 21 to 28.
Chaplains, not over 35.
Naval Instructors, 20 to 35.
Engineer Students, 14 to 17.
Probationary Assistant Engineers, 20 to 23.
Students in Naval Construction, 14 to 17.
Royal Marine Artillery, 16 to 18.
„ Light Infantry, 17 to 23.

4. Defects permissible in candidates for Surgeons, Assistant Clerks, Chaplains, and Naval Instructors are—

More than seven defective or deficient teeth, provided they are repairable, and that the grinding powers are not seriously impaired. A slight degree of varix or of varicocele. Defective vision, whether myopia or hypermetropia, in any degree for distance, but the candidate must be able to read D : 06 Snellen with either eye, each eye being separately examined. Royal Marine Officers may have one-sixth of normal vision remediable by glasses, so as to equal normal vision with one eye and half vision with the other eye. They must be able to read D : 08 Snellen with either eye without glasses.

5. FORM OF DECLARATION to be filled up and signed by Candidates for_____

_____in Her Majesty's Naval Service.

Have you ever had Fits of any description?	
Have you ever expectorated blood or suffered from any affection of the Chest? Or are you at any time subject to Palpitation of the Heart?	
Do you suffer from Stricture of the Urethra Piles, or Fistula, or have you ever done so?	
Have you ever suffered from Acute Rheumatism or Gout?	
Have you ever suffered from any affection of either Ear, or from Deafness?	
Have any of your near relatives suffered from Consumption, Insanity, or Fits?	
Have you ever sustained any serious bodily Injury? If so, state particulars.	
Have you at present, to your knowledge, any complaint or Physical defect, either hereditary or acquired, that would predispose you to disease, or that would in any way interfere with the proper performance of the duties you will be required to perform in Her Majesty's Service?	

I declare the above answers to be correctly given to the best of my knowledge and belief.

Signature _____

Date_____, 189 .

APPENDIX XVIII.

(*See* also Appendix XXXIII.)

Table I.

Table showing average heights and chest girths, and annual rate of increase from 17 to 30 years of age, the maxima and minima of these, and the rates of maxima and minima from Public Schools, Naval and Military Cadets, Medical and University Students, *i.e.*, well-favoured, non-labouring classes.*

Age last birthday.	Height, without shoes, in inches.					Empty chest girth, in inches.				
	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.
17	76·5	67·84	56·5	20·0	1·46	40·5	33·98	27·5	13·0	0·90
18	77·5	68·29	59·5	18·0	0·43	41·5	34·44	29·5	12·0	0·46
19	77·5	68·72	60·5	17·0	0·43	41·5	34·77	29·5	12·0	0·33
20	76·5	69·13	63·5	13·0	0·41	41·5	35·25	29·5	12·0	0·48
21	74·5	69·16	62·5	12·0	0·03	42·5	35·42	30·5	12·0	0·17
22	75·5	68·93	62·5	13·0	..	40·5	35·30	30·5	10·0	..
23	74·5	68·53	64·5	10·0	..	40·5	35·50	30·5	10·0	0·08
24	73·5	68·95	64·5	9·0	..	41·5	36·10	31·5	10·0	0·60
25 to 30	74·5	69·06	63·5	11·0	..	42·5	35·96	30·5	12·0	..

Table II.

Table showing average heights and chest girths, and annual rates of increase from 17 to 22 years of age, the maxima and minima of these, and the range of maxima and minima among Candidates for Commissions.

Sandhurst, 1889.

Age last birthday.	Height, in inches.					Chest girth, in inches.				
	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.
17	74 50	68·51	63·75	10·75	..	38·00	32·93	28·50	9·50	..
18	75·00	69·00	63·00	12·00	·49	39·00	33·65	29·50	9·50	·72
19	75·00	69·35	64·75	10·25	·35	38·50	33·84	30·00	8·50	·19
20	72·00	69·55	66·00	6·00	·20	36·50	34·05	30·00	6·50	·21
21	72·00	68·64	65·00	7·00	..	37·00	34·28	32·00	5·00	·23
22	72·25	69·20	64·00	8·25	·56	35·50	34·60	34·00	1·50	·32

* "Growth of the Recruit and Young Soldier."—Sir William Aitken, Knt., M.D. London, 1887.

Table III.

Table showing average heights and chest girths; and annual rate of increase, the maxima and minima of these, and the range of maxima and minima of Militia and University Candidates for Commissions.

November, 1893.

Age last birthday.	Height, in inches.					Chest girth, in inches.				
	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.	Maximum.	Average.	Minimum.	Range.	Average annual growth, in inches.
19	70·00	68·50	67·75	2·25	..	36·50	34·25	33·00	3·50	..
20	70·75	68·50	65·00	5·75	..	34·00	33·33	33·00	1·00	..
21	72·50	69·94	67·25	5·25	1·44	37·00	34·72	33·00	4·00	1·39
22	75·50	68·86	64·25	11·25	..	37·50	34·86	33·00	4·50	·14
23	73·25	68·58	67·00	6·25	..	36·50	33·91	33·00	3·50	..

APPENDIX XIX.

Questions sent by the Chairman, in writing, to Mr. Walter Wren, M.A., together with his Answers thereto, and a Memorandum addressed to the Secretary of State.

1. Are you satisfied with present syllabus?

2. If not, why not?

3. What alterations you would suggest?

4. Would you widen the range of subjects in the following way:—

   Taking, say, 10 principal subjects of education, a candidate shall take up five, all being marked equally for Sandhurst?

5. While, for Woolwich, would it not be advisable to have the examination more special, and make the obligatory subjects French or German, English, mathematics, geometrical drawing, physics (electricity, heat, and sound)?

6. Would you impose a plucking minimum in each subject, or not allow any marks under (say), 100 in 2,000 maximum to count?

7. Have you any remarks to offer as to examiners? Would there be any value in having a second examiner to check the marks?

8. Have you any views as to marking for physical development or athletic exercises, such as gymnastics, riding, walking, shooting, jumping, swimming?

Questions 1 and 2. Am I satisfied with the present syllabus? If not, why not?—I think it is as bad as bad can be, because it sets at defiance the statements of the Duke of Cambridge, Lord Wolseley, and other military authorities as to what is necessary, as well as those of Lord Salisbury and others.

His Royal Highness the Duke of Cambridge says he is anxious for the higher education of military Officers. If candidates for Woolwich and Sandhurst knew well all they are allowed to take up they would still not be "educated" enough to be ready to profit by the advanced courses of technical instruction, which ought to be found in the military colleges.

Mathematics is a most important and necessary subject. To limit candidates' knowledge to "compulsory smatterings" is contemptible.

Why handicap the best competitors by limiting them to smatterings?

A candidate can be successful on—

*"Baby" mathematics (no "higher").
Latin.
French.
Greek.
English History and Composition.
Drawing.

[N.B.—Geography, a most important, if not necessary, subject, is virtually excluded by having 500 marks only allotted to it.]

I assert, without fear of contradiction, that a candidate successful on the above list would be totally unfit for his necessary technical instruction.

His Royal Highness the Duke of Cambridge says all Army candidates ought to be able to speak French. (I should say German, too.) The Committee of Head Masters say His Royal Highness knows nothing about it, and that if Officers could speak French, they would have "few or no opportunities of using it." I think His Royal Highness right, and that colloquial French should be compulsory.

If candidates knew all the "higher mathematics" allowed, they would not know enough.

The exclusion of the differential calculus, and the limitation of conic sections to "elementary properties with easy problems" is absolutely comical. I should like to know how cadets are to be taught "gunnery," projectiles, &c., while ignorant of conic sections.

It is stated that "great importance will be attached to accuracy in numerical results" in higher mathematics. Why state this? Does any teacher or learner expect credit for inaccuracy?

The great importance of mathematics as an "educational" training is that it is an exact science. The answer to a question in mathematics is right or wrong.

"Higher mathematics" is undervalued, and should be "compulsory."

The English history set is absurd. What Lord Wolseley and other military authorities say should be done.

I am informed that knowledge of chemistry, electricity, geology, and geography are now essential or necessary for Officers. If so, they should be compulsory.

I have no "opinions" on this matter. I know that His Royal Highness the Field-Marshal Commanding-in-Chief says that knowledge of certain subjects is necessary for Officers. I say that these subjects should be compulsory. I know that there are other subjects of great educational value. Such subjects should be permitted to all candidates.

Question 3. What alterations would I suggest? and (Question 4), would I widen the range of subjects? and (Question 5), would I make the Woolwich examination more special?—I think what I have already written answers these questions.

My memorandum points out the sensible division into two classes made by the military authorities—

(*a.*) Necessary and therefore "obligatory."

(*b.*) Valuable, for various reasons, and therefore permitted (*vide* pages 3 and 4 of this Appendix).†

Question 6. Would I impose a "plucking minimum"?—Certainly. I would not allow any smattering to get any credit. Kill smatterings. Allow no marks to be scored except "over half" (*vide* page 12).

Question 7. Have I any remarks to make *re* examiners?—No. So far as I know the Civil Service Commissioners have always appointed competent men of late years.

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* "Baby," because of the absurd limitations imposed, *e.g.*, in arithmetic "simple" interest only; why not "interest," and *a fortiori*, why not "arithmetic" and no limitation whatever?

† *e.g.*, (1) Classics—because of its great value as "education."
(2) Arabic and Russian—because useful.

But there would be great value in a second examiner. Each should set a paper, and each should mark the other's paper as well as his own. This would check "faddism."

Question 8. Would I mark for physical development, &c.?—No. There should be a most careful medical examination or test. But all needful skill in athletics should be made a part of the technical training in the colleges, so long as there are colleges. Of course, the existence of colleges is indefensible. That is admitted by leading authorities of all schools of thought and politics. When they are done away with, necessary knowledge of athletics may be insisted on.

The above remarks apply to Sandhurst as well as to Woolwich. I note the small difference of not insisting on even the little mechanics demanded for Woolwich. But the examinations of Woolwich and Sandhurst should be one. The first on the list should have his choice, and so on, so long as a choice existed. This is a necessary inference from what the military authorities say.

Higher education is needed for all Officers, whether for the Royal Engineers, Royal Artillery, Cavalry, or the Line regiments. "Education" is one thing, not several.

The technical training for Royal Engineers and Royal Artillery is different from that needed by Sandhurst cadets. Let it be so.

But all should be educated, and the entrance examination should be the same for all.

WALTER WREN.

MEMORANDUM addressed to the Right Honourable H. Campbell-Bannerman, M.P., &c., Her Majesty's Secretary of State for War, on the Higher Education of Military Officers, by Walter Wren.

To the Right Honourable H. Campbell-Bannerman, M.P., Her Majesty's Secretary of State for War.

Lord Wolseley has lately called attention to the fact that our military Officers must be both well educated, and receive all the technical instruction they need. He has pointed out how when he went into the Army, ignorance was general, and knowledge scarce; that study of even professional subjects was thought "all rot," that military education was all nonsense, in short, that ignorance was rather a recommendation than otherwise, and that the Officer who "set earnestly to work" to learn the science and art of his profession was a poor sort of creature, probably a mere book worm.

He has pointed out that the greatest Captains, whether ancient or modern, have deeply studied the science of war: how Cæsar (whom he classes with Alexander, Hannibal, Scipio and Pompey) knew most thoroughly the theory of war, the art of tactics, the science of strategy; that the lives of Prince Eugene, Frederic the Great and others proved that they had thoroughly mastered and understood the principles of strategy. He has demonstrated how the lives of Marlborough, Napoleon, Wellington and Von Moltke prove much more. He shows what these great Captains knew, and deduces from that what all Officers must study, and that the more they know of their professional subjects, the better.

He says the best devised plans in war have been entirely upset and rendered hopeless by the blundering ignorance of Officers commanding divisions, brigades, regiments, and even of squadron and company leaders. Ignorant Officers are incapable of understanding, and therefore of carrying out, the General's orders.

On the other hand, sometimes the ignorance, or folly, or incompetence of a General has been repaired by the military skill and ability of his subordinates.

He has proved that ignorance in Officers is one of the worst of crimes. He quotes Sir Charles Napier ("a deep and constant student")—

> "An ignorant General is a murderer. All brave men confide in the knowledge he pretends to possess, and when the death trial comes, their generous blood flows in vain! Merciful God! How can an ignorant man charge himself with so much blood? I have studied war long, earnestly and deeply, yet tremble at my own deficiency."

The Duke of Wellington told Sir J. Kennedy, during the British occupation of Paris, that he always made it a rule to study by himself several hours a day, and had acted on that rule before he went to India, and had continued to act upon it. Lord

Wolseley recommends all our Officers to follow Wellington's example. It is quite plain that what the great Duke thought necessary for himself is much more necessary for Officers with say one, two, or three talents against the Duke's ten. The campaigns of 1866 and 1870, and the career of Von Moltke, proved beyond doubt that knowledge is more needful than ever, and more knowledge, and a higher standard of knowledge.

Finally, he tells us what Officers must know in order to keep pace with the progress of Officers of Continental armies, and that our Army may be better and a far more efficient fighting machine than any other Army in the world. It is not needful to show that England cannot afford to run the risk of what might happen to us were our Army and Navy unequal to our national defence. There are no two opinions about that, and there must be no doubt about the matter. We must be twice as safe as safe can be rather than be in a state one thousandth part less than perfect safety.

Lord Wolseley tells us what is the knowledge which is essential—absolutely necessary—for Officers, and the subjects which therefore must necessarily be studied.

The military authorities, as might be expected, support Lord Wolseley. Indeed, they are more definite. The last two reports of the (late) Director-General of Military Education furnish us with a complete list. It is plainly divisible into two parts: the subjects which come under the general head of "education," and those which as plainly come under the head of technical instruction. Technical colleges are at present supposed to be necessary; at any rate they exist. Therefore the training of military Officers consists in (1) the education up to the competitive examination (so-called) for admission to the technical colleges of Woolwich and Sandhurst; and (2) the course of instruction they go through before being commissioned at the end of their course there. The latest reports of the Civil Service Commissioners, to whom the duty is entrusted of examining candidates for admission, show us the principles on which they discharge it.

Here is the list—

1. Mathematics, not "elementary," but "mathematics." The word "higher' is used; and as "physics" are specified, it is clear that heat, light, electricity, and magnetism are included, as in these days of telegraphs and telephones they plainly must be. Mechanics and hydraulics are also specified.

2. Natural science (including those branches sometimes called "experimental"). It is equally plain that the schedule of subjects required of candidates for Honours in the Natural Science Tripos at Cambridge is not required for military Officers. Geography, physical geography, physiography, geology, chemistry and heat and electricity are specified or implied. These at least are necessary. Botany, biology, zoology, and other branches seem as plainly unnecessary.

3. Modern languages. Here the reports are not so clear. French seems the only one thought necessary. German is in the schedule. Spanish, Russian, Italian, Modern Greek, Turkish, Arabic, Hindustani, are recommended. Arabic seems more necessary than most, so long as Egypt has to be occupied by our troops in the interests of Europe.

4. Drawing in all its branches, including mapping.

5. English literature and composition.

Plainly the authorities think the above a necessary part of education, as well as a necessary preparation for the military colleges—introductory to their technical instruction in their professional subjects, viz., military topography, fortification, and tactics, field engineering, metallurgy, steam, military law, military administration, military history, explosives, applied science, drill, artillery, &c.

I am limiting myself to what the military authorities think necessary. The Duke of Cambridge, Lord Salisbury, Lord Wolseley think something more to be "necessary." But all agree about the above.

I must now show what the Civil Service Commissioners think necessary. On page vii. of 36th Report we read—

> "For the Royal Military Academy, Woolwich, two competitive examinations were held in 1891. At the June examination 216 presented themselves, 114 failed in the 'obligatory' portion of the examination and one withdrew, so 101 candidates competed for 60 vacancies. At the November examination there were 190 candidates, 106 failed in the 'obligatory,' so there were 84 qualified candidates for 50 vacancies."

I will limit my remarks to the Royal Military Academy, Woolwich. What is true of Woolwich is more true of Sandhurst and the back door into the Army, called "by way of the Militia."

The Royal Military Academy is for the technical instruction and training of Her Imperial Majesty's Officers in the scientific (higher) branches of the Service, viz., Royal Engineers and Artillery, for whom higher education and more advanced technical training are necessary than for the Line regiments and Cavalry.

I know but little of the Guards. But I have good reasons for believing that they are in a very unsatisfactory state, and that any young man with a large private fortune, and willingness to spend lavishly, can get a commission in "the Guards," whether he knows anything or whether he does not. This is a matter of the highest importance. The Guards have always been looked on as our mainstay. When mere hand-to-hand fighting was needed, power to repel an enemy's bayonet charge, and power never to fail in making a successful one, strength, bravery, perfect discipline, coolness and resolution, led by Officers who would walk or run up to the mouths of the enemy's batteries with as much coolness as they would sit down to dinner, with courage not often equalled and never surpassed, knowledge was less needed. "Cold steel" did wonders in those days. But if we were involved in a war with a Continental power, and invaded that power's dominions (as we have done before), and through the ignorance of Generals and Colonels lost our Brigade of Guards, as we lost our Light Cavalry Brigade in the Crimea, through the ignorance and incapacity of those who commanded them to perform an impossible feat, neither those Generals and Colonels nor the authorities at home, whether military or civilian, neither the Field-Marshal Commanding-in-Chief, nor the then Secretary of State for War, would escape well-deserved punishment. That some Lord blundered might be a sufficient excuse and apology in 1854, for those whom Lord Wolseley and Sir C. Napier call the murderers of (say) 400 "common soldiers" (two-thirds of the brigade), but it will not be enough in 1895, still less in 1905, for those who through ignorance or incapacity murder two-thirds of our Brigade of Guards, or indeed of any single regiment.

The Franco-German war has taught us what an army led by educated, instructed, and trained Officers can do with an enemy, however brave, led by inferior Officers, and we must do what is needful in educating, instructing, and training our Officers before the next war, and not after suffering the experience of France. Napoleon (with his Officers) did what he pleased with the Germans who tried to stop him at Austerlitz and Jena. Von Moltke and his did what they pleased with the imposter and "murderer," Napoleon III., who thought he was a soldier because his name was Napoleon.

Candidates for admission to the Royal Military Academy have to pass two examinations, one called the preliminary and the other the competitive. Here follows the schedule of subjects for the "Preliminary"—

1. Mathematics.

   (*a.*) Arithmetic, including vulgar and decimal fractions, proportion and simple interest.

   (*b.*) Euclid. Book I.

   (*c.*) Algebra, up to and including simple equations.

2. French or German, the examination limited to translation from the language, and grammatical questions.

3. Writing English correctly in a good legible hand from dictation.

4. Latin, parsing, and translation with the aid of a vocabulary of the narder words.

5. The elements of geometrical drawing, including the construction of scales and the use of simple mathematical instruments.

6. Geography.

No marks are given. An average boy of 12 would pass this examination if properly taught. The subjects of the competitive examination and the maximum number of marks obtainable follow:—

CLASS I. (Obligatory.)

	Marks.
1. Mathematics. A thorough knowledge of each of the following four branches of mathematics will be required:—(*a.*) Algebra, up to and including the binomial theorem, the theory and use of logarithms (*b.*) Euclid, Books I. to IV., and VI.; (*c.*) Plane trigonometry, up to and including solution of triangles and mensuration; (*d.*) Statics and dynamics; Statics, the equilibrium of forces, acting in one plane and of parallel forces, the centre of gravity, the mechanical powers; Dynamics, uniform, uniformly accelerated, and uniform circular motion, falling bodies and projectiles in vacuo. (Analytic methods of solution will not be required)	3,000
2. Latin	2,000
3. French or German (200 for colloquial)	2,000

CLASS II. (Any two subjects may be taken up.)

	Marks.
1. Higher mathematics. (In all the following subjects great importance will be attached to accuracy in numerical results): further questions and problems on the subjects of the obligatory examination. Statics: problems and exercises will be extended to friction; the graphical or geometrical method of treating such problems should be studied as well as the analytical; no application of the differential calculus to statics will be required. Dynamics: problems and exercises involving analytical methods of solution, but not the use of the differential calculus, will be extended to collisions and work. Analytical geometry: problems on straight line and circle. Conic sections: elementary properties, with easy problems both on the analytical and geometrical methods ..	2,000
2. German or French, as alternating with Subject 3 in Class I. (200 for colloquial)	2,000
3 Greek	2,000
4. English history. There will be set: one general paper; one paper limited to a fixed period, of which notice will be given	2,000
5. Chemistry: elements of inorganic chemistry..	2,000
6. Physics: elementary properties of electricity, magnetism, heat, light and sound	2,000
7. Physical geography and geology, chiefly economic, including the recognition of the more familiar minerals and rocks, and their properties and uses	2,000

In each of the subjects 5, 6 and 7, the examination will be partly practical.

CLASS III. (All three subjects may be taken up.)

1. English composition, tested by the power of writing an essay or letter ..	500
2. Drawing, freehand	500
3. Drawing, geometrical, including practical plane geometry and the construction of scales*	1,000

Every candidate must satisfy the Civil Service Commissioners in obligatory mathematics, and must in addition obtain in the other subjects he takes up such an aggregate total of marks as may indicate in the judgment of the Commissioners a competent amount of general proficiency.†

If a candidate satisfies the Civil Service Commissioners in the manner stated in the preceding paragraph, the number of marks gained by him in the several subjects in which he has been examined will be summed up, and the resulting total will determine the place of the candidate in the competitive list, the successful candidates being those who stand at the head of the list up to the number of cadetships competed for.

Note carefully (*a*) analytical methods of solution will not be required; (*b*) no application of the differential calculus to statics will be required; (*c*) in conic sections only elementary properties with easy problems will be required. "Smatterings" have been denounced for many years; why should the head masters be allowed to make them compulsory? To call the above "higher mathematics" is an abuse of language. The list contradicts the title. The knowledge of mathematics possessed by a successful competitor for Woolwich should be equal at least to that of a successful competitor for an entrance scholarship at Trinity College, Cambridge.

"English history." The prescribed course is absurd. It should be what Lord Wolseley advises, and Napier's "Peninsular War" the book set.

Compulsory Latin is absurd when the knowledge required of successful candidates is useless.

The War Office told the head masters that both scholastic and colloquial French was to be obligatory. The War Office was right. All the subjects in Class III. should be obligatory, and the marks raised. English composition is at least as important as useless baby Latin, and worth more than one-fourth of the marks allotted to baby Latin.

2,000 marks should be allotted to "obligatory" mathematics and 3,000 to "higher."

In the 35th Report of the Civil Service Commissioners it is stated (pages viii. and ix.) that the primary object of competitive examinations is to select the best qualified

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* Great importance will be attached to neatness and exactness of drawing.

† The requirements of the aggregate total of marks will come into force at the examination held in June, 1894.

candidates for appointment in the public services. The examinations should be of a character to encourage sound and liberal methods of preparation. The authorities of the War Office regard modern languages and drawing as desirable in Army candidates. But their main object is to secure youths who have had a thoroughly well-grounded, liberal education. ("Liberal methods" of preparation and "liberal education" are not defined.)

It is plain, however, that the definitions were to be those of the Committee of the Head Masters of the Public Schools. The schedule of subjects and marks, and the limits of age of the candidates, were settled by them. They got the principle laid down that "every facility and inducement should be provided for the youths of England to pass directly from the public schools into Woolwich and Sandhurst, without requiring additional tuition." (*Vide* 33rd Report of the Civil Service Commissioners, pages xxvii. and xxviii.; *see* also pages xvi. *et seq.* for the "Head Masters' Scheme," &c.)

The head masters' notions of a "liberal education" and a "liberal method of preparation" may be seen in the schedules of subjects and marks. That the "knowledge" with which the successful competitors for the military colleges enter them is totally unfit to be regarded as "education" necessary for their subsequent technical instruction can be seen by looking at the examination papers. The head masters' notions of what is needful are illustrated by the following correspondence:—

In 1881 a circular was sent out of the War Office telling the Committee of the Head Masters that they ought to teach their Army candidates to speak French.

The Study of French in the Army.

From the "Times" of 4th July, 1881.

On Saturday there was published some correspondence which has taken place between the War Office and the head masters of public schools on the subject of greater prominence being given to the study of French, and especially to a colloquial facility in that language. The following letters are of interest:—

The Earl of Morley to the Rev. G. C. Bell, M.A.

War Office,
Sir, 6th January, 1881.

The military authorities having had under their consideration the question of demanding and encouraging proficiency in the French language among the Officers of the Army, have come to the conclusion that, from the date to be hereafter fixed, and of which fair and ample warning will be given to all whom this measure may concern, a knowledge of French, both scholastic and colloquial, shall be made obligatory on all candidates for admission to the various branches of the Army, except only in cases where the candidates may have a knowledge of colloquial German, when they will only be required to qualify in scholastic French.

His Royal Highness the Field-Marshal Commanding-in-Chief, and the Secretary of State for War, being thus of opinion that a knowledge of French, even if it be not required from every English gentleman, may fairly be demanded from every British Officer, and that it is indispensable to Officers who aspire to employment on the Staff, still recognize the fact that the acquisition of this language in early youth is absolutely necessary for the prosecution of it in later years. But His Royal Highness and the Secretary of State also recognize that, while a due knowledge of this language scarcely forms a part of the general curriculum of education, it would be most undesirable hastily to adopt any change of system which might have the effect of excluding from the Army that most valuable class of English gentlemen, the young men who have passed through the public schools of the country.

In the meantime it has been resolved to give an additional value to French in all competitive examinations in the Army in which that language forms a course of study, and at the same time it is intended to request the Civil Service Commissioners gradually to raise the standard in that language at the preliminary examinations.

His Royal Highness and the Secretary of State are aware that of late years a great impulse has been given to the study of modern languages at the public schools; but also that one of the great difficulties experienced at these schools may be traced to imperfect education in this direction at home and at the private preparatory schools, a direction in which, however, the head masters of the public schools have large means of exerting that beneficial influence, without which no ultimate result could be attained or expected.

In the hope, therefore, that measures for the furtherance of the object above indicated may prove capable of adoption, and that they may meet the concurrence of those to whom the guidance and control of the general education of this country is entrusted; judging also that the Conference of which you are the Chairman is the body before which this subject should be more properly brought for notice and discussion, I

am directed by His Royal Highness and by the Secretary of State to request that you will oblige them by bringing the question before the Conference of Head Masters, and of favouring them with any suggestions which you may think fit to offer in reply, more especially as regards the date at which it would be fair to introduce the proposed change.

I have, &c.,
MORLEY.

The Rev. G. C. Bell, M.A., to the Earl of Morley.

Marlborough College,
My Lord, 23rd May, 1881.

The memorial received from you, dated 6th January, on the subject of French in examinations for the Army, together with a paper with questions on it, drawn up by the Head Masters' Committee, was confidentially circulated among the members of the Head Masters' Conference, and answers have been received from some 58 head masters.

1. An examination of the answers shows that while more than half of the head masters would not altogether dissent from the proposal to give additional weight to French in Army examinations, this opinion is considerably limited by their subsequent answers, so that, in many cases, it does not cover the details of the alterations proposed by the War Office.

2. On question 3 there is a diversity of opinion, such as may indicate that no serious dissatisfaction is felt with the present apportionment of subjects and marks; on the whole, if any change were made, the votes would be in favour either of simply adding marks for French, or of reducing the marks for English history and literature, or for English literature only.

3. A small minority are found to say that their present school arrangements give a reasonable knowledge of colloquial French, and only a few of the others see their way to such alterations as would satisfy the War Office requirements; they rather consider that nc such alteration could be effected without detriment to more important parts of the school work.

4. On the remaining questions the analysis shows that the following opinions are supported not merely by a numerical majority, but (which is more important) by a far superior weight of experience and of testimony from schools which supply many Army canditates:—

(*a.*) It is acknowledged that there is some advantage in acquiring accen and pronunciation at an early age, *i.e.*, in childhood, before going to school; but in a public school the conditions of life and of class teaching are such as to make a training in colloquial French practically impossible (on this point the evidence of the most experienced head masters is most convincing); the effort to give such training would entail the sacrifice of valuable time, already barely sufficient for subjects of much greater educational value; and even after such a price had been paid success would be more than doubtful. The utmost, in fact, that schools could do, as far as a colloquial knowledge of a foreign language is concerned, would be to attain imperfectly by the labour of years what can be effected in a very short time in the country itself, where everything about the learner helps to teach him. They can give, and may reasonably be required to give, a sound training in French grammar, vocabulary, dictation and composition; without this solid foundation colloquial knowledge is apt to be loose and evanescent; with it it is easy for a young man to acquire facility in colloquial French by a few months' residence abroad (as is constantly shown by the case of young men who are preparing for commercial life and go abroad for a few months after leaving school); but educational and moral reasons make it desirable that such foreign residence be deferred till after the schoolboy age. Assuming therefore that colloquial French is considered necessary as a technical accomplishment for a British Officer (although a large proportion of Officers on foreign service have few or no opportunities of turning it to account) the most practical plan would be to require that every candidate after admission to Woolwich or Sandhurst should pass a qualifying examination in colloquial French before receiving his commission; and during or after the Woolwich or Sandhurst course to give him facilities for a foreign residence of three or six months, in order to qualify himself to pass such examination.

(*b.*) There is a strong consensus of opinion that the attempt to make colloquial French obligatory on entrance to the Army would cause candidates to leave the public schools a considerable time before the period of examination to seek special tuition in England, or more probably on the Continent. They would thereby lose precisely the most valuable period of public school life, when a boy rising to the top of the school receives the most able and experienced teaching, and is also being trained to bear public duties and responsibilities.

(*c.*) As the number of candidates is far in excess of those appointed to commissions, and unsuccessful candidates try again and again, the unsettlement and injury resulting from this special requirement would be very widely felt.

(*d.*) Another result of this enforcement of colloquial French would be the occasional exclusion from the Army of able men with little aptitude for an accomplishment that is not in itself an evidence either of intellectual power or of sound and systematic training.

5. A considerable majority see no insuperable difficulty in satisfactorily conducting the examination in colloquial French provided—

(*a.*) That great care be taken in the appointment of competent and judicious examiners.

(*b.*) That no attempt be made to classify or assign definite marks for this part of the examination, but that it be simply a qualifying or "pass examination."

(*c.*) That the marks be kept and entered apart from those given for scholastic French.

The chief difficulty is felt to be the length of time required for the examinations This might be partially obviated by holding the oral examination during the paper work. Several other practical difficulties are mentioned, arising from candidates' nervousness or want of conversational power even in their own language, and also the difficulty of baffling "crammers"; for there is much evidence that for this part of the examination candidates can be somewhat easily crammed.

6. On the question, "What would be 'fair and ample warning' of the change?" the answer, "two years," has received the most votes.

7. Some 20 schools claim to exert more or less direct influence on the teaching of French at home or in preparatory schools by their examinations for admission; the remainder only affect it indirectly through the influence exerted by the enforcement of French as part of the school course.

8. On the whole, then, it appears that the head masters fully and practically recognize the importance of "scholastic" French in Army education, but also that they earnestly deprecate attaching additional importance to "colloquial" French as a part of the Army entrance examination, because they believe it would result in injury to the candidates themselves, and to the public schools; and that it would be still more injurious to the Army by weakening that direct connection between the Army and the public schools which is most valued by those who know most of Woolwich and Sandhurst.

I have, &c.,
G. C. BELL,
Chairman of the Committee of the Head Masters' Conference.

In their letter, the Duke of Cambridge and the Secretary of State for War tell the head masters of the public schools that—

(*a.*) Knowledge of French may be fairly demanded from every British Officer in the Army.

(*b.*) Knowledge of French is indispensable to Staff Officers.

(*c.*) They would not hastily make any change likely to exclude public schoolboys.

(*d.*) Knowledge of French being necessary, and the existing ignorance being unbearable, the standard of knowledge must be raised, and French will be more highly marked than hitherto in all competitive examinations for admission to the Army. These have been "resolved on."

(*e.*) (v. paragraph 1.) Knowledge of French is to be a proficiency, not a smattering.

(*f.*) Knowledge of French, both scholastic and colloquial, is to be obligatory on all Army candidates. except in those cases where German takes its place.

The head masters replied—

1. A few of us do give a reasonable knowledge of colloquial French. (Their notion of "a reasonable knowledge" would most likely not meet the military authorities' demand for "proficiency.")

2. Only a few see their way to such changes as would satisfy the War Office requirements. They have "more important school work to attend to," they say.

3. In the public schools a training in colloquial French is practically impossible. "Time required cannot be found; it is wanted for subjects of much greater educational value," they say.
   If they found the time, success would be more than doubtful (*i.e.*. the head masters cannot undertake to teach any boy to speak French).

4. In paragraph 4 we find probably the most impudent answer ever penned, even by head masters, to a Royal Highness and Commander-in-Chief of the British Army, and Her Majesty's Secretary of State for War.

   "Assuming, therefore, that colloquial French is considered necessary as a technical accomplishment for a British Officer (although a large proportion of Officers on foreign service have few or no opportunities of turning it to account,") &c.

This means, in plain English, that the Duke and the Secretary of State are talking of what they know nothing. They say that proficiency in colloquial French is necessary for Staff Officers. The head masters say that colloquial French is a "technical accomplishment," and that those Officers who can speak French "have few or no opportunities" of using it. I do not know what a "technical accomplishment" is.

Why should a small clique of interested men have their claim to be dictators and infallible admitted, when the only reply they can make to the military authorities, who tell them they ought to have their Army candidates proficient in both scholastic and colloquial French, is—

(1.) The power to speak French is an accomplishment.

(2.) It is no evidence of intellectual power.

(3.) They are able men who cannot learn to do it.

(4.) It can be somewhat easily crammed.

(5.) Crammers should be baffled, though there is a difficulty in doing it.

How is it that able men cannot learn an "accomplishment" which is easily crammed, and which requires no intellectual power, and why is it that any teachers should be "baffled" when doing what the War Office says should be done, and which the head masters admit they cannot do, they did not say. They did not much care what their answer was, provided that it made clear their contempt for a Secretary of State and a Government Department who presumed to tell them they ought to do something they did not do.

5. "Difficulties arise from the candidates' want of conversational powers in their own language." What sort of training—what sort of education—do public school boys get, who, after five or six years of preparation for the public schools and four or five years there, suffer from a "want of conversational power in their own language." What do parents and guardians get for the 1,000*l.* or so they pay for each public school boy.

6. I have said all that need be said about the head masters' opinion that those who do teach boys to speak French should be "baffled," *i.e.*, prevented from doing so, if possible. But I am wholly unable to conjecture where the evidence is to be found that power to speak French could be easily crammed, at a time when the military authorities were demanding it should be done because, though it was necessary, it never had been done.

Finally, the head masters "believe" that proficiency in colloquial French, ability to speak French would injure the Army!!!

So, having demonstrated the total ignorance of His Royal Highness the Commander-in-Chief and that of Her Majesty's Secretary of State for War, of what is

necessary for Army Officers generally, and for Staff Officers particularly, and their own superhuman knowledge, they made up their minds they would not try to do what they could not do, and they did not do it, and have got the regulation cancelled which required them to do it.

Whence it appears that Commanders-in-Chief, whether Royal Highnesses or not, Her Majesty's Secretaries of State and authorities generally, had better think twice before they require anything in the way of teaching from the head masters of the public schools—or even ask it with bated breath and humbleness. I have elsewhere demonstrated that the head masters' trades union is the most powerful in the world, because it is the only one in which the employed settle the wages, the hours of work, the quality of the work, the number of holidays, and the interpretation of the contract between them generally, while the employers take what they can get and say nothing, whether they get little or nothing.

The last report of the Director-General of Military Education says—

> "While it is the expressed wish of the military authorities to obtain as many candidates as possible from the English public schools, the effect of the present marking is to cause the withdrawal of boys from the English public schools."

In the previous report it is stated that it is "most desirable that the future Officers of our Army should, if possible, come direct from the public schools to the military colleges. Every disposition exists in the War Department to facilitate this end."

Two things seem to come out clear, viz., that His Royal Highness the Commander-in-Chief, the War Office, the Civil Service Commissioners, want all the Officers in Her Imperial Majesty's Services to come direct from the public schools; and (2) that only well-educated young men should achieve success in the competitive examinations for admission to Her Imperial Majesty's military colleges. A more liberal method of education is to be encouraged than existed before 1890. Sound, well-grounded education for all candidates is desired. The head masters say the regulations now in force provide it. I invite all interested in the welfare and efficiency of our Army to examine them, to scrutinize the examination papers set since they have been in force to weigh carefully what sort of a standard of "education" is set up by them, and the official reports of the percentage of successes and failures. I assert that Her Imperial Majesty's Army is sacrificed to the public schools, that we shall soon have (even if we have not now) the most ignorant Officers of any Army in the world; and that a much worse fate awaits our Army than it met in the Crimea if we come in collision with a first-class military power. I say that making baby Latin, baby French, and baby mathematics compulsory, and excluding knowledge of Latin and French and mathematics worth having, is providing Her Imperial Majesty's military colleges with boys so ignorant and so uneducated as to be unfit for a proper course of technical instruction.

We now come to the practical part of the matter. It is admitted that well-educated candidates only should succeed: that certain knowledge is necessary for an Officer: and that technical instruction up to a high standard is also necessary. Now comes a most important fact. Continual pressure is put on the War Department to make the course of instruction at the Royal Military Academy more highly technical than it is already, and these demands cannot be disregarded. Nothing is said about the technical instruction at Sandhurst in this connexion. But want of education and knowledge; and ignorance of the technical subjects all Officers should know well, cannot be desired—although unfortunately there is proof that it exists. The military authorities know, from the reports* they have received, that many Officers have not received the ordinary education of English gentlemen, that they are deficient in hand-writing, composition, and spelling, that the ignorance of some of them is "appalling"—that the inefficiency of some is so great as to be injurious to the public service, that they cannot write decent English, that ignorance of mathematics is so great that many Officers cannot make the most ordinary calculations required in field engineering, that they are not only so ignorant of mapping and scales, as to be wholly unable to make a map, but are also unable to understand and use one when given them. After this my readers will not be astonished to learn that many Officers look on examinations as merely irksome bars to promotion, that they resent being required to do elementary problems in the technical subjects, *e.g.*, tactics, fortification, topography, military law, and say that only "bookwork" questions should be set; and that some Commanding Officers (doubtless because ignorant themselves) consider the examination in these subjects solely as a technical qualification for promotion, and not a proof that the Officer is possessed of such military knowledge as is essential for the proper performance of his public duties. (Clearly English literature and composition are necessary subjects in the education of an English gentlemen.)

The Duke of Cambridge said in the House of Lords that he was anxious for "the higher education of Officers." Lord Salisbury said that the history and literature of our own country were necessary as well as natural science. Sir J. Lubbock complained in the *Times* that modern languages and natural science are "not properly taught in any of our public schools." This is proved so far as French is concerned by what I have

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* The rest of this paragraph is mostly quotations.

written above. If any one wants to know how French should be taught, let him read how one of the best French scholars of the day, Mr. Walter Besant, says that it should be, in the early pages of his novel, "All in a Garden Fair." (p. 28.)

> "She met the boys at the garden gate, and told them a few French phrases, and the names of things about them, and what she was going to talk about. Then they began to find French names for everything, as they played in the forest, as they walked to school and back. Remark:—The first thing you want with a language is the vocabulary; men who learn languages begin after the manner of Adam, with the names, not after the manner of the schoolmaster, with the syntax. Those who do not want to learn a language begin with grammar and exercises—this is the way of our schools.
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> "Next they learn how to connect the names with verbs and adjectives and things of that sort. Then they perceived that a certain amount of grammar was necessary.
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> "When their ears had caught the sound of the French language, when they had learned a copious vocabulary and could read with pleasure and talk freely, though still with plenty of mistakes, their teacher set them to write, they read a story one evening andwrote it down the next. Then they compared what they had written with what they had read, and were put to shame. It was necessary to find out many more things in the grammar—they found these out. Their teacher was a man of ideas, and of clear mind. He wanted the boys to learn, not to pretend. He, therefore, made them teach themselves by an intelligent process—not by the conventional process. In two years they really knew French.
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> "One does not talk every evening with a man who has read, and can think, and has acted among his fellow men, without results. First of all the boys read quantities of books, lively travels, in which the writers, being Frenchmen, looked out for dramatic situations; biographies, also written by Frenchmen and therefore compiled with a view to tableaux; history, full of splendid scenes; and tales especially the tales of Erckmann-Chatrian. Next, they learned that there are other forms of life besides business life (this was an immense stride in knowledge), and other occupations besides buying cheap and selling dear, &c."

It is certain that military Officers should be commissioned when young men. The public schoolmasters say that the limits of age of candidates for the military colleges should be 16 to 18. Two years of tehnical instruction in those colleges is not too much. Boys are allowed to compete three times while under 18. This is to favour the public schools, 18 being the age up to which they wish boys to stop. They must go to public schools while under 14, say at 13, so as to have five complete years at school. If they stay at home with their mothers till eight, they have five years at a dame's or preparatory school—or at both. So they have five years of preparation and five for completion of their education. They are to be educated, not crammed. Their education is to be "well grounded," "thorough" (not smatterings), "liberal," "sound," "exact," and "accurate," "such as every English gentleman should receive."

Some subjects are necessary—

1. English history, literature, and composition.
2. Mathematics.
3. Natural science (two branches).
4. French.
5. Geography, especially physical.
6. Drawing, both geometrical and freehand, and mapping.

Here is plenty for the five years of preparation.

It is unnecessary for me to specify how much of each a child can learn between eight and 13. It is quite clear that if three-quarters of the 10 years are spent on Latin and Greek, we cannot have such well-educated, well-trained, well-instructed military Officers as His Royal Highness the Commander-in-Chief and Lord Wolseley want. Too much must not be expected. Plenty will be left for "the schools" to do, *e.g.*, the standard of higher mathematics should be identical with that which must be reached by successful competitors for mathematical scholarships at the best colleges at Cambridge. But there would be time for voluntary subjects, the above list being of those that are obligatory. The voluntary subjects should be—

1. Latin.
2. Greek.
3. One or more modern languages.
4. An additional branch or more of natural science.

I lay down the following as axioms :—

(1.) It is far more important for every little child to learn and study the works of God rather than the thoughts of men. Natural science should precede languages.

(2.) Teach young children by the eye not by the ear (except modern languages).

(3.) Thirteen is quite young enough to begin the study of classics. One of the most distinguished senior classics of modern times, the wife of the Master of Trinity College, Cambridge, has proved this beyond cavil.

(4.) Modern languages should be taught by the ear when possible, rather than by the eye (*vide* "All in à Garden Fair").

It is by the voluntary subjects rather than the obligatory (except in the case of mathematics) that the best candidates will be discovered. All the candidates can attain to virtual perfection in the lower parts of the obligatory subjects. A candidate who had the taste and the literary capacity necessary for classics, and the ability and industry needful to secure high marks in both them and in mathematics would beat well one who was inferior to him in ability, even if the latter was successful. If two boys possessed exactly equal knowledge of their obligatory subjects, the one who was clever enough and industrious enough to achieve proficiency in three voluntary subjects would take a higher place than one who could do only two.

Cramming and the taking up of too many subjects would be rendered impossible by (*a*) competent examiners, (*b*) allowing only those marks to go towards the grand total, which are above $\frac{1}{3}$ or $\frac{1}{2}$ of the total assigned to each subject. This entails the hardship that a candidate who gets 510 in a subject carrying 1,000 marks scores 510, while one who gets 490 scores nothing. But it would kill smatterings, and it would be good to show each candidate that he must make half-marks a certainty in all the subjects he takes up. I should be equally well pleased by letting all candidates score only the number they make above a fixed minimum, say 200 in every subject.

There is another important matter. Independent examiners should examine candidates for commissions. The professors, or lecturers or tutors (whatever they are called) of the military colleges should not be allowed to audit their own accounts any more than treasurers or secretaries.

I have addressed myself herein to one question only, viz., that raised by the head masters, the Civil Service Commissioners and the War Office, "How to get thoroughly well educated and thoroughly well instructed and trained Officers, possessing all the knowledge needful for an English gentleman," and also all the proficiency in professional subjects needful for competent and efficient military Officers.

There are others almost or quite as important to be dealt with before Her Imperial Majesty's Army is all Lord Wolseley wishes to see it.

Lastly, the nation must have what the Duke of Cambridge wants, and what Lord Wolseley says is necessary. The Army needs Officers—not ignorant striplings, but young men thoroughly educated in general subjects, forming a proper preparation for technical instruction in military colleges. This is not a party question but an Imperial one. Never mind what public schools want—or say. Never mind what private tutors say. All English men and women are interested in this matter. Let us have well-educated and well-instructed Officers—not Officers so ignorant, so criminally ignorant that the General dare not send into action the battalions he commands because he would not "connive at murder" by sending brave soldiers into danger under such men. Ignorant cadets make incompent subalterns. Incompetent subalterns make incompetent Colonels. Incompetent Colonels make incompetent Generals. From incompetent Generals result defeat, disaster, heart-breaking loss of valuable lives, waste of public money. The nation suffers and the nation pays the bill, and not those responsible for the ignorance and incompetence. Are we to have an efficient Army? Is that to be done which the Duke of Cambridge wants, and what Lord Wolseley says is necessary? Or is the Empire to be sacrificed to the interests of those who virtually say, "Never mind the Army; never mind how ignorant Officers may be; never mind the wretched privates whose lives may be sacrificed to their Officers' ignorance and inefficiency; never mind national defeat and disgrace. If the rank and file of a few (or many) regiments are annihilated through their Officers' incompetence, the survivors will have the satisfaction of knowing that they were, at any rate, led to the slaughter by gentlemen who had received "a thoroughly well-grounded education at a public school!"

As you have lately received a deputation of head masters of public schools who urged the further development of "science teaching," whom you reminded that German was of great importance to the Army at the present time, I have ventured to address this memorandum to you at, I hope, a fitting time.

WALTER WREN.

POWIS SQUARE,
June, 1893.

APPENDIX XX.

MEMORANDUM of the Rev. L. R. Phelps, M.A., Fellow and Tutor of Oriel College, and Member of the Hebdomadal Council, Oxford.

The conditions under which University (Oxford) candidates compete for commissions in the Army are formulated in the regulations of 1891. These provide for two classes of men, viz.—

I.—Those who being under 22 years of age have passed Moderations.

II.—Those who being under 23 years of age have taken the B.A. degree.

The experience of my own college goes to show that a very large majority of the candidates belong to Class I., and as to them I would remark—

(1) That the regulations do not guarantee any residence at Oxford. The University statutes with regard to examinations prescribe a certain amount of standing on the part of candidates, reckoned from matriculation, it is only for the B.A. degree that residence is a condition. Hence, conceivably, a man might present himself as a University candidate without having resided an hour in Oxford. I do not say that this is probable; no college, presumably, would assent to put the name of a man on their books for such a purpose, but it must be borne in mind that it is possible.

(2.) That in the case of men who have passed Moderations, residence has commonly been from October to June, *i.e.*, omitting vacations, some six months. Whatever may be the advantages derivable from pursuing a course of study under definite conditions of instruction and companionship, apart from the results of an examination, these advantages are fully enjoyed only by those who reside a considerable time here. A man's first year at Oxford gives him but little of that more or less formed character which is commonly connected with the phrase "University man," and if it be the object of the regulations to secure a supply of University men for the Army, I do not think that the object is secured at present.

(3.) That practically the result of the present system is this: a certain number of men discover that it is more to their advantage to compete as University candidates than in the open competition, either because—

(*a.*) They think it an easier mode of obtaining a commission; or

(*b.*) They think that if they fail they will, at least, be on their way to a degree here.

To put this shortly: as matters stand some candidates for commissions go to the University, but members of the University do not become candidates

I am not at all blind to the good effects of the existing regulations. Probably a boy who comes here from school and passes as a University candidate, makes at least as good an Officer as one who has broken off his school course to be specially prepared for the open competition. But the question may be considered from two points of view—

(1.) That of the University, with which I can hardly expect the Committee to concern itself. It is one object to secure as large an increase as possible in the number of "openings" in life available for men who have graduated, and we feel that the Army should be as much one of these as, *e.g.*, the Indian Civil Service.

(2.) That of the Army. I cannot but think that it would be an advantage that the Army should draw its Officers largely from the Universities, and I am convinced that we turn out every year a number of men who would make excellent Officers, but who now waste their lives in callings, *e.g.*, teaching, for which they are wholly unsuited.

The question suggests itself, how these two objects which are not inconsistent with each other, may be secured, and here, even after consultation with many residents, I must confess myself unable to offer suggestions of any great value. I would, however subjoin the following :—

(1.) It is, I think, clear that the War Office authorities have done everything in their power to meet our wishes in modifying the conditions imposed on University men. After conferences in 1888–89, they withdrew the compulsory residence at Sandhurst, which we considered to be a great stumbling block in the way of University candidates. But in spite of this, the expectations which we had formed have not been realized. For some reason or another, we do not find men's minds turning towards the Army as a career, when they approach the end of their course here.

(2.) On the same grounds it would not be right for us to ask for an increase in the number of commissions granted to University candidates.

(3.) It might possibly be worthy of consideration whether any commissions in the Engineers and Artillery might be confined to University candidates.

(4.) The present indifference may be, to some small extent, due to insufficient knowledge. More advertisement in the *University Gazette*, and among college tutors, might direct attention to the subject; possibly an unpaid agent might be appointed to be a centre of information.

(5.) By some the age for graduates is thought to be too low, and an extension of the time desirable.

(6.) Some are strongly of opinion that a longer period of residence should be required in the case of candidates belonging to Class I.

(7.) For myself, I am strongly of opinion that the question should be considered as part of a larger whole. If it is desirable that the connection between the various services of the Crown (military and civil) and the Universities should be strengthened, then a consistent and uniform policy should be adopted. Such a policy might (for the purposes of this enquiry) find expression in a common examination, by the results of which all the services should be recruited, so far as regards University candidates, at any rate. A man who offered himself at this examination would specify the order of his preference for different branches of public service, and be offered employment according to his place in the examination.

The present variety of examinations for the Foreign Office, Indian Civil Service, Home Civil Service, Army, &c., tends to confuse men's minds. It leads them to specialize for definite departments, and so to unfit themselves for competition for any other, the result being, that their general education suffers as well. But in many instances, I am convinced, men are actuated by a desire to be employed under the Crown, and are, comparatively, indifferent to the form which employment takes. The practical difficulties in the way of any such scheme I do not underrate. On the other hand, the advantages of a closer connection between the Service and the Universities are considerable to both, and, without urging any creation or extension of exclusive privileges given to University men, I venture to think that the time has come when these advantages should be taken into account, and should determine the direction of future changes.

APPENDIX XXI.

EXTRACT from Evidence on Examinations for the Army, submitted to the Committee recently appointed to consider the subject, by Dr. Almond, Head Master of Loretto School.

. . . . . It has been a subject of regret to me that examinations have often been so arranged that their practical effect is to take boys away from school, and send them to tutors in this country or abroad.

So far as they have this effect, we prematurely lose many of the boys who would be most useful as prefects, who are necessary to our system. On the boy's side the loss is even greater. For the best part of a boy's whole education is when he is entrusted with responsibility. But this is not all. When a boy is withdrawn from school and placed at a tutor's, especially if the tutor's establishment is in a large city, he almost of necessity loses discipline, physical development, hardy outdoor habits, plain living, and wholesome subjects of interest and conversation suited to his age. What, indeed, can be expected when a number of lads, from all sorts of places, are thrown together, under no responsible officers from their own number, too old for being under the constant supervision of men (which is indeed a thing destructive of all independence, were it practicable), and with all the energies of the establishment necessarily concentrated and exhausted on the one object of enabling its pupils to obtain marks enough to pass? It may fairly be asked, why do schools not supply the necessary education?

I shall try to answer this question.

First.—Tutors are bound to devote themselves to passing their pupils, and, therefore, can do this better than those whose object is, or ought to be, to turn out the best possible men *all round*, and whose attention is distracted by perpetual questions of discipline, character, and school arrangements of all sorts and descriptions. I must, therefore, freely admit that tutors, having one thing only to do, are likely to do it better.

Secondly.—On the intellectual side of education, the schoolmaster aims chiefly at the cultivation of the intelligence and mental powers of his pupils. He believes that, with the exception of a few matters of direct and pressing utility, "all we can teach a boy out of the infinite, is to know one or two things so well. that while the knowing of other things may be made easier, the knowing of things inaccurately may be despised."

From this point of view, he regards such a thorough mastery of one, or at most two, well-selected languages, as is implied by his being able to interpret whatever has been said by their greatest writers accurately, idiomatically, and forcibly into his own language, and able also to interpret whatever has been best said in his own language accurately, idiomatically, and forcibly into one of the other two, as of very much greater value than a less thorough mastery of several languages, and of infinitely greater value than any amount of knowledge about languages, or about the history of their literature. And just as he believes, in common with all the world, that a knowledge of the results of geometry is almost useless, but that a mastery of the methods of geometry is the wicket-gate of all theoretical science, so he regards as practically worthless a text book or note book cram of several sciences, but a practical knowledge of one, as of chemistry learned in a laboratory and tested in a laboratory, as a necessary preliminary to any real understanding of the meaning of natural law, or any due appreciation of any practical science. And, therefore, in general, he believes that the mere reproduction, by a pupil, of what he has learned from books, or by word of mouth, is of little or no value in comparison with his acquired power of interpreting, of reasoning, of analyzing, and of performing for himself.

Those who have hitherto arranged public competitive examinations do not appear to me to have had these principles sufficiently in view. Consequently the schoolmaster has found two things in opposition which ought never to have been separated, viz., what is best for his pupil's mental development, and what is best for the pupil's success in some examination. The tutor does not profess to be troubled by the former of these alternatives, and can, therefore, devote himself exclusively to the latter.

Thirdly.—Even where schools are willing, as the lesser evil, to sacrifice a pupil's intellectual development to his success, the process necessary to attain the latter has been rendered far too expensive. As a matter of fact, a first-rate school, where the pupils board, costs, on an average 100*l.* per annum. A first-rate tutor, or "crammer," costs from 200*l.* to 300*l.* This is a necessary consequence of the amount of highly paid individual tuition which is encouraged by the present system. It may be true that some schools often find it their interest to devote an undue share of attention to some particular boy or boys. But such boys do not pay for this, unless they are charged private tutor's fees. Consequently the rank and file of the school do not receive a fair share of what they are paying for. I have heard of a schoolmaster, no longer alive, who remarked to a friend that only one-tenth of his boys were of any use. "But what do you make of the rest?" was the astonished reply. "Oh; they can't gain any successes for the school; we let them go pretty much their own way." Large Army classes may indeed be possible in a very large school, but even they are severely handicapped in the race with private tuition.* I cannot think that this was the object of abolition of purchase, which was, professedly, to open the Army to poorer men.

Fourthly.—In proportion as any examination rewards cram rather than intelligence, it increases the hours which can be profitably spent over books, and thereby impairs the robustness and stamina of the candidates. The old formula with regard to hours of work, 5 + 2 make 7, 7 + 2 make 5, is approximately true where the object is rather the cultivation of intelligence than the acquisition of information. I am afraid that it does not hold true with regard to our Government examinations. Now, no schoolmaster, worthy of the name, will accept the responsibility of playing tricks with the constitution of a boy, at the critical period of youth, in order to advertise his school by what is called a "success." I am far from blaming the crammers for not paying regard to such considerations. They could not succeed if they did, and they do not undertake the training of a boy, but the winning of marks. They do honestly what they profess to do; but few of us could accept the conditions.

It remains that I should indicate from these and similar points of view, the changes which I would advocate in the present system of Army examinations.

In the first place, the adoption of a system of physical tests, partly as necessary for qualification, and partly as marked subjects in the competitive examination, would do much to prevent candidates from being enfeebled by an undue proportion of sedentary work, would thereby put a pressure on both schools and tutors to make a study of the health and vigour of their pupils, and would procure for the Services men possessing the governing qualities in a higher degree, on the average, than can possibly be the case when the competition is exclusively intellectual.

On this subject I beg to submit an article by myself on "Physical Tests in Competitive Examinations," a copy of which has been sent to each member of your Committee. I regret that I do not feel able to state my case fully, or to answer probable difficulties in shorter compass; or I would willingly have condensed it. I feel, however, that while the general principles of my article are unassailable, the particular tests proposed are tentative, and, in many respects, imperfect.

In the second place, I have further to explain the distinction which I have drawn between cram and intelligence, and show, in some detail, how I think that the examinations should be arranged (due regard being had to subjects of direct utility), so as to encourage the latter rather than the former, and thereby diminish both the expensiveness and the unwholesomeness of the previous training.

Cram is encouraged by subjects and questions in which a candidate simply reproduces what he has learned from books or from his tutor's notes. Intelligence is encouraged by subjects or questions in which he has, more or less, to reason out his answers, and to employ the various faculties of his mind, and not memory only.

From this point of view there is little to say about the mathematical part of the examinations for Woolwich and Sandhurst. I would myself be inclined to diminish the amount of bookwork set; for bookwork may be crammed, and problems cannot. Skill in solving problems, therefore, tests the powers which will be most required in in his future career by the scientific officer, whereas his bookwork will be a fading memory.

I would also be inclined to question whether the "higher mathematics" in the Woolwich papers are not too high for boys of 18, from the point of view of their future mathematical power. Perhaps I may be allowed to adduce a piece of personal evidence.

The most stimulating mathematical teacher under whom I have ever been was the father of the present Lord Kelvin. When Professor at Glasgow University, he did not attempt to rush us into higher mathematics, but used to propound to his class of 150 students an immense number of problems, to be solved by Euclid's methods. It has always seemed to me that this was a much better method of cultivating and testing

* Since writing the above, I have the evidence of a head master of a school of 500 boys, that the Army class, from a financial point of view, is a loss.

the reasoning faculties than the getting up of bookwork in higher subjects. The average age of his class was about the same as that of Woolwich candidates. I am certain that I went through my higher work at a much greater pace than if I had began it before the age of 18.

On the more contentious subject of languages, there is a fundamental distinction which seems to me to have been, to a great extent, lost sight of.

Languages have a claim to enter into a military examination scheme, for two distinct and entirely separate reasons, viz., because they will be practically useful to the future officer, and in so far as they are an instrument for cultivating what Mr. Goschen has so well called "the faculty of interpretation," and the mental powers and functions generally.

This distinction is of the utmost importance.

For the system on which a language ought to be learned depends almost entirely on the reason why it is to be learned at all.

The classical languages rest their claim to a place in education solely on the latter of the two reasons. No one nowadays wishes to talk Latin, or to write business letters in Latin, or to understand anyone speaking rapidly in Latin. And where a language is learned, not for daily and ready use, but as an instrument for training the faculty of interpretation, the power of accurately showing subtle distinctions, or the literary sense, the old method of grammar and dictionary is the right one.

But where a language is learned for the former of the two purposes, this old method is utterly wrong. All the evidence goes to prove that some method like that by which a child or a traveller learns languages, is the one which is natural and right. Such a method (and I may refer to Mons Gouin's books and system as the best embodiment of it which I know), does effect its purpose.

But it does not, at the same time, train the rational powers, and must not be expected to do this. A man might talk on the level of common life in a dozen different languages without any gain whatever in intellectual power.

And there is nothing of which I am more certain in education than the mixing of two methods in first learning any language prevents either purpose from being satisfactorily achieved. Now it is clear that the chief languages of modern Europe, spoken, written, and understood on the level of ordinary life, are part of an Officer's necessary outfit. And it is far better that every Officer should have a thorough command of one, than an imperfect command of two. But I suppose I am right in saying that there should be some men in every regiment who have such a thorough command of French, and some of German, and possibly the same may be true of Spanish or Italian. It follows, therefore, that instead of only 400 marks being given (out of the 2,000 devoted to a modern language) to an oral examination, the whole 2,000 should be given to proficiency in conversing, and in quickly writing and interpreting ordinary and business correspondence in the language. And such a knowledge of one modern language should be imperative on every candidate. Such a step would react admirably on schools. At present we are confused by the same language being learned for two distinct purposes; and the whole machinery of grammar, lexicon, text books, &c., which ought, in the case of modern languages, to be discarded, is still maintained. Who can wonder that our modern sides are a practical failure?

It may be asked, however, why should not another modern language, or the same, at a previous or subsequent time, be also learned for rational and literary purposes, thus doing away with the necessity of learning a classical language at all? I regret that this question has been obscured, on both sides, by minor and irrelevant considerations.

Two appear to me to be conclusive.

First.—It is extremely undesirable that the future Officer—even if he can, at an early age, select the Army as his profession, with a certainty of passing into it—should be prematurely separated from the future clergyman, lawyer, or medical man. Competitive examinations will do great mischief to society if they encourage a tendency, already too apparent, to early bifurcation, or rather multifurcation, and thereby widen the intellectual gulf between men of different professions, even if, in the end, the result is not to create various classes of schools, each with their own special object, and with diverging types of education.

And secondly.—The modern languages generally, with the possible exception of German, cannot supply the place of the classical languages, especially of Latin, as an instrument of training in the art of interpretation, and in the development of the intellectual powers generally. Setting aside the confusion of purposes which, as I pointed out before, would result from the substitution even of German for Latin, I may perhaps be allowed to employ the words of Mr. Goschen, because it is impossible to improve upon them. (Addresses, 1885, page 39.) "When you teach French and German, it is not so much the aim to instruct in the construction of the sentences as that in the end the student should know French and German. The advantage I am driving at is this, that in the one case a much larger number of mental processes has to be gone through than in the other. Set down a boy of fourteen years to translate a piece of Greek and

then a piece of French, and watch the working of his mind, and you will see whether it is not a totally different affair. In the physical sciences you can illustrate from the platform some of the points you wish. I am afraid I could not summon two students to this platform to show, by the mental evolutions they go through, how many more processes are needed to put Greek or Latin into English than French or German. Many of you may not be able to follow me, not having been taught a classical language; but I think you may take it from me that there are five times as many mental processes to undertake in translating from Latin or Greek into English than there are in translating a modern language."

I shall be surprised if any schoolmaster who has studied this matter practically and inductively will traverse Mr. Goschen's words. No one who has ever corrected Latin exercises can doubt the supreme value of Latin as a training in observing numerous and subtle distinctions, no one who has ever showed a class how to hammer out Virgil's precise meaning, and reproduce it, after many failures, in terse and idiomatic English, can fail to see how Latin is an unrivalled instrument in teaching the master art of interpretation.

As a matter of fact, I have seen for many years a modern side in operation, in which no Latin was learned. Making all allowance for differences in average ability, the contrast between the two sides, in power of grasping and comprehending not only new literary subjects, but new scientific subjects, such as chemistry, has been most marked; and I have no hesitation in saying, from a wide experience of boys who have gone out into the world, that, on the average, I will back the boy thoroughly trained in Latin against the boy trained in modern subjects for success in any walk of life whatever. I would, therefore, advocate the retention of Latin as a compulsory subject as thoroughly as I have advocated the enforcement of a practical command, on the level of ordinary and business life, of one modern language.

I must protest against a low standard being set in either direction. A man who cannot express his meaning clearly and readily, or who cannot understand what is said to him, will be of no use in dealing with ordinary Frenchmen or Germans; and in like manner, such an imperfect Latin training as is implied in the preliminary papers of July 1892—where the meaning of such words as "animadvertere" and "insidiæ" is explained in a footnote—is of no use whatever, and the setting of such a standard merely serves to bring the study of Latin into contempt. In education an inaccurate smattering of any language is worse than total ignorance of it.

It is obvious that questions about the history of the Latin language or literature ought to have no place in such an examination. They simply test and encourage cram.

A third necessary subject is English. But the word "English" is often so used as to imply a fallacy.

English, to a large extent, is already provided for. It is the water which makes all the food of education succulent.

A Latin training is really a Latin and English training. Both lanugages are put, or ought to be put, on exactly the same footing. A good examiner attaches as much importance to the English of a translation being idiomatic and forcible as to the Latin being understood, and marks would surely be deducted from a piece of Latin prose or verse if the meaning of the English passage had been misunderstood. But I am afraid that what is often meant by "English" is a knowledge about the language and its literature of the same kind as that which I have been reprobating in the case of Latin. Knowledge about Cowper is as crammable as knowledge about Tibullus, and intelligence is neither trained nor tested by a paper on the history of either the English or the Latin language.

Knowledge of grammar, again, is sufficiently tested by the power of using it correctly, nor can any kind of question be more objectionable than such as have been set by classical pedants about the genders or tenses of rare words, or by English pedants about the jargon of grammatical analysis.

But some who would avoid cram of this description would yet argue that a knowledge of some of the masterpieces of English literature should be introduced as either a compulsory or an optional subject. I sincerely hope that no examination in set books, either in English or in other languages, will be reintroduced into the examinations. In fact, a set book in English is even worse than a set book in a foreign language, for, in the latter case, the pupil can scarcely remember the whole translation; he has to exercise some intelligence. But, in the case of the English book, he has nothing whatever to do but to reproduce the notes and the criticisms which he has learned from tutor or from book, unless indeed it be to paraphrase it, *i.e.*, to say badly what has been said well. "Paraphrase" is as bad an exercise in English as translation is a good one. Nor does getting up English authors for examination create a love for them in after life, but rather the contrary. On the other hand, if a boy has had so to steep himself in a masterpiece of an inflected language as to be able to unravel its intricacies and delicate terms of expression, and render them idiomatically and forcibly into his own comparatively uninflected tongue, he insensibly imbibes a knowledge of what good literature is, and a love for it, with a corresponding distaste for what is bad and vulgar. As a matter of fact, I have never yet known a good classical scholar who had not imbibed such tastes. And I submit that few things can be more desirable, from many points of view, than to promote sound literary tastes in the Services.

I trust that candidates may not in future be worried by an examination in spelling. Educated men always spell well enough; and even in instances where there is such a natural incapacity as shows itself in the misplacing of vowels, or the inaccurate doubling of consonants, it is of no practical importance.

Punctuation is a very different matter. Bad punctuation often alters the intended meaning, and may be the source of serious error. So that, without introducing any pedantic standard, I think that serious mistakes in the English essay should take off marks.

English composition is the one form in which an examination in English, as a separate subject, seems to me desirable.

There should be three papers under this head—

1. An English essay, a choice of at least three subjects being given.

2. A pamphlet, speech, or article should be given to the candidate to review. This is an admirable form of examination. Cram for it is impossible; but it tests intelligence, skill in composition, and the width of a candidate's thought, reading, and general information.

3. A paper of general questions, such as are set at Scholarship examinations, a wide choice being allowed. The really full and intelligent answering of four or five questions should bring more marks than a perfunctory reply to twenty.

There are, however, numerous difficulties about such a paper. If care is not taken, it opens a wide field to cram, and perhaps too much depends on the special bias or tastes of the examiner personally. I believe that general information should be tested and marked at a *vivâ voce* examination, of which the great aim should be, not to find out a candidate's ignorance, but his knowledge, and above all, his intelligent interest in something worth knowing. The vastness of the possible field is the great objection to any such examination. For my own part, I should call a man ill-educated who knew nothing about the mechanism of the universe, the past history of the earth, the evolution of its varied life, the physiography of its surface, the laws of its atmosphere, its seas and its climates, the great lines of its commerce, its chief industries, the periods of its history which most affect ourselves—such as the Greek wars of liberation, the growth and maturity of the Roman Empire, the history of our own Reformation, and of the Revolutions of the 17th and 19th centuries—and who should not have read with intelligence (not to cram, but to enjoy) some of our great works of fiction and imagination. And yet, up to the present time, a man might have passed for the Service and known and cared nothing about any of these things, and at the same time have had a knowledge exacted for him of things which imply nothing but unintelligible cram, which are sure to be forgotten, and which could always be learned if wanted; such as the topography of the home counties, the capes of Australia, or the (to us) unimportant politics of the 18th century. But yet I have not found, by experience, that a man educated on the lines I have laid down is ever wanting in general information and intelligence, though there is nothing about which men differ more widely than the subjects which, according to their natures, they cultivate or neglect. And I would not be sorry to see an examination in English, by itself, confined to the first two of my suggested papers.

It appears to me, then, that these four subjects, treated so as to encourage intelligence and to exclude cram, should be compulsory on all candidates: Mathematics; Latin, as a literary language; French or German, as a language spoken, written, and understood on the level of ordinary or business life; and English, in the form of an original essay and a criticism on some pamphlet or article.

Some would doubtless think that geography ought to be added.

Now, I have carefully studied the papers set at the preliminary examination, and I have watched candidates preparing for them; and I have no hesitation in saying that the effect of the geography examination has been in several ways injurious, with very little compensating benefit.

For, first, the amount of information to be got up is enormous, involving an immense expenditure of time and energy.

Secondly.—Much of this time is greatly needed for work which exercises the intelligence; some of it also is subtracted from the amount of outdoor exercise and sleep required for robust health. For, from the point of view of marks, more time can be profitably spent by candidates at cram subjects than at such as require his intelligence to be keen and vigorous.

Thirdly.—Schools will readily follow in the track of the military examinations so long as the subjects prescribed exercise intelligence. But no good schoolmaster will introduce geography on this enormous scale into his curriculum. An intending candidate has, therefore, either to work extra hours or be separated from his form or class, and so raise the cost of his education.

Fourthly.—The information acquired is chiefly of a disconnected character, and therefore soon fades from the memory.

Fifthly.—It can be easily acquired afterwards at any time when it is wanted, whereas subjects which exercise the reasoning faculties cannot be so acquired. Any man will learn more about a district or a country after a week's residence in it, or on a voyage out to it, than he could possibly remember from having learned about it in books years ago. Again, the knowledge about the topography of a country for actual use (say) during a campaign must be acquired from maps at the time it is needed, on a far more minute scale than any examination can embrace. No one would think of carrying about his address book in his head.

If, however, a geography paper is reintroduced, I hope it will contain more questions on physical geography, in which a certain amount of intelligence is required, and that examiners will not be so harassingly minute as to place Dryburgh in a list of towns, there being, in fact, no town at the place but a ruined abbey. The questions set in some of the recent papers are very foolish, and tend to bring the study of geography into contempt.

In the paper set in September, 1892, the only question testing intelligence is No. 3. The only other questions which ought to be part of a man's mental furniture are Nos. 5 and 6. No. 9 is ridiculous in the extreme.

It would probably be better, from a military point of view, to make geography a study at Sandhurst and Woolwich, and to confine the attention of the cadets to information which might be of some use to them. The rivers of Siberia or Australia, the branch chains of the Rocky Mountains, and the trade of Hungary scarcely come under that category. Life is not long enough to know all that is worth knowing, even without encumbering the mind with rubbish. I have laid the more stress on this matter of geography, because I have frequently seen a boy's intellectual work and school life distracted by having to cram this subject. The examinations for the Army have not been the only offenders. I have known three head masters and a distinguished professor find themselves unable, by their united wisdom, to locate one-half of the names asked in any question set at a pupil teachers' examination. In a recent preliminary legal examination at Edinburgh, Ednam and Merom appear in one question. I am not ashamed to say that I have no idea where they are.

To the four necessary subjects, one, and one only, optional subject should be added. It is an undue strain on the intellect of a growing boy to make him work at too many subjects. If he has an intelligent grip of a few, he will be better able to master his professional studies, and there is not the same occasion or temptation to rob himself of exercise or sleep, as, unfortunately, has too often been the case in connection with competitive examinations. From every point of view, quality rather than quantity of work should be rewarded. Four subjects at once present themselves for the optional list, viz:—

1st.—Higher Mathematics, but not requiring any knowledge of the Differential Calculus.

2nd.—German, studied as a literary language in the same way as Greek or Latin. For the Officer who means to devote himself to scientific research, German is most important. French appears to me to have no such claims. Useful as it is on the level of common life, its study as a literary language does little for the mind. Idle boys fly to French for the reasons so well stated by Mr. Goschen. The same considerations apply to Spanish and Italian, and no Latin scholar has any difficulty in learning to read any of the three languages whenever he wishes to do so.

3rd.—Greek. I do not think that Greek supplies as good a discipline for the rational faculties as Latin does.

At all events, two such disciplines are not needed. But Greek literature does foster the taste for good literature of all kinds even more than Latin does, and it is surely desirable that there should be some men of scholarly mind and acquirements in the Army. Further, all candidates cannot succeed, and may have to choose some other professions in case of failure. It is also most undesirable to discourage Greek at schools. The abler boys will continue to learn it, and it will be disastrous if these are separated from the rest. Nothing can more encourage the undue worship of athletics than unnecessary separations between boys in their work. In proportion as school work is unified, will success in it be admired. If it is divided and dislocated, no boy will admire eminence in anything of which he is wholly ignorant. But Greek composition might be dropped with advantage. It serves no purpose not better served by Latin composition. And in our crowded curriculum, we must throw overboard everything that can be spared.

4th. Some branch of physical science studied practically.

Chemistry seems to me to be the best adapted for this purpose. Indeed, if we can only get geography out of the way, I am not sure that some power of practical

laboratory work should not be included in the necessary subjects. For every man ought to know, by actual experience, what is meant by the uniformity and precision of the laws of nature, and chemistry is the best road to this sort of knowledge. The objection to its being a compulsory subject, is its expensiveness, for chemistry learned from text books is a mere waste of time. I long, however, to see practical chemistry introduced into the regular curriculum of schools. If some of the cram subjects such as Latin, Greek, and English grammatical curiosity papers, and others which masquerade under the name of "English" and "geography," can be eliminated, there may be some hope of this coming to pass.

I can see no objection to other experimental sciences, and geology, practically examined on, as in the recent papers, retaining their present position.

I need hardly say that natural history should be as rigorously excluded as at present. In the examination room it means nothing but unadulterated cram.

I cannot see that history is a good optional subject. It is certainly true that a boy of 18 ought to know something about great characters and great events of history; but this argument would place it among the compulsory subjects. Nor is such essential knowledge confined to history proper. It is as disgraceful to be ignorant about Galileo as about Cromwell; about the solar system as about the Magna Charta. Such knowledge of various kinds can be tested in a general paper such as I described. But it cannot be tested in an optional history paper.

And though any boy ought to be able to give a fair answer to the general paper on English history, set in July, 1892, the special period paper is pure cram, and his time would have been far better employed in learning something about the great men and great events of general history.

In fact, history, as an optional subject, cannot be prepared for in the curriculum of any reasonable school, and means necessarily expensive private tuition.

I think that this matter of individual, and therefore expensive, tuition, ought to be seriously regarded by the Committee in selecting their subjects of examination.

If these are well selected, it will re-act most favourably on schools, by cheapening and unifying their curriculum, by helping to produce order out of the present educational chaos, and by cultivating intelligence and discouraging cram.

I have said nothing about drawing. So far as I know, its present position in the examinations is liable to no objections.

There is one point so obvious to a schoolmaster that it did not occur to me to mention it in its proper place. It is this. The more that examinations consist of definite things to be got up, the more the teacher is fettered. There is so much which has to be actually known, that he has but little time to give himself rein, and interest his boys. Indeed, if he does this, a feeling arises among the boys that he is wasting their time, because he is not helping them to score marks. But the more that success in an examination depends upon intelligence, the freer he will feel, and the more intellectual interest he will in consequence rouse among his boys. Let any one read Dr. Arnold's life and he will see what I mean. I venture to say that no man could do that work now. He might with a select few, but even if, by much argument and correspondence with parents, he can somewhat abate the flood of "specializing," he cannot help many boys being carried away with it, and then such work becomes almost impossible. I do not mean that any other man could work exactly on Arnold's lines, we are all differently constituted. One man is keener on literary criticism, another on curious research, another on trains of thought and argument, another on social questions, another on various manifestations of that power which we call nature. But independently of the actual stimulus which he may give to a boy on his own particular subject, the very fact of a man being keen, or even enthusiastic, rouses similar qualities in his boys. For myself I can say that I dare scarcely teach upper boys who have to pass cram subjects. And yet, of all subjects, I delight in teaching geography, in trying to make boys understand something of the working of cause and effect on the surface of the planet on which they live. But then, if they are going in for examinations, I ought to be cramming them with the Ednams and the Santarems, and the Orinoco tributaries, and such like.

The result is that we have either to handicap our boys' chances, or cease to rouse intellectual enthusiasm. Who can wonder at the universal complaint that boys care for nothing but games, and if they have not good games to care for, for even less desirable subjects of interest, and that the exceptions, fewer than ever, have less and less position among their fellows? It is a heavy indictment to lay; but, so far as examinations have rewarded cram rather than intelligence, it is examinations that have done this.

The age for both Woolwich and Sandhurst ought, in my opinion, to be raised at least six months. Not only is it desirable to put off, as long as possible, at the growing age, the pressure, and possibly the partial deprivation of fresh air and exercise, incidental to special preparation for a competitive examination; but a school prefectship is a most important part of the training of any one who is to hold a position of responsibility, and a boy is hardly ever fit for such an office till he is nearly 18.

HELY H. ALMOND.

APPENDIX XXIa.

PAPER on "Physical Tests in Competitive Examinations," submitted to the Committee by Dr. Almond, Head Master of Loretto School. Extracted from the *Educational Review* for April and May, 1893.

The object of the present paper is not to discuss the expediency of competitive examinations. A return to patronage, even if it were desirable, is impossible; and the only alternative to patronage is competition in some form or other. This statement is not inconsistent with the opinion (which I entertain very strongly) that the principle of Queen's Cadetships ought to be more extensively adopted in the Army and applied to other services. For the presence of a large hereditary element would both strengthen *esprit de corps* and also render appointments more valuable and attractive. But for the great mass of appointments competition is inevitable. I have never been able to understand, however, why, for the more active services at least, it should be purely intellectual. The reason of the thing is against it, and any practical difficulties might easily be overcome. To prove these two points is the object of this paper.

Let us go at once to the root of the matter, and ask what sort of men do we require for the active services, and how are we best to get them?

The present system is based on the argument that intellectual qualifications are desirable, and easily tested, and that other qualifications are not easily tested, but are practically found in sufficiently large proportion among those who come to the front in purely intellectual competition.

My answer to this argument is, first, that some other necessary qualities can be easily tested; secondly, that possession of these, joined with purely intellectual qualities, carries with it a far greater probability of other most necessary and not easily tested qualities than the possession of intellectual qualities alone; thirdly, that although, in dealing with natives of Great Britain, the present system, as a rule, does indirectly, to a very large extent, secure competent men, yet in dealing with natives of our dependencies it frequently breaks down; and, fourthly, that a great deal of the unquestionably excellent material we obtain is weakened and injured in the process of preparation for the competitions.

What, then, are the qualities required?

They may be divided roughly into those of brain, character, and physique; roughly I say, for there is no sharp dividing line. All human excellences are interlaced and interdependent. It will be said by the supporters of the present system that those of character are most important, but cannot be directly tested; that those of physique are comparatively unimportant, and, in the case of the Army, are looked after at Sandhurst; and that those of "brain" are tested. Let us deal with this last statement first.

The qualities we are in search of appear to me to be mainly the following: intelligence, special information, industry, business habits, force of will, power of command, high principle, temperance, courage, endurance, courtesy, high spirits, physical robustness, and vigour. And I must here maintain that such qualities as force of will, power of command, &c., are distinctly "brain" qualities, and I emphatically protest against the common way of talking of "brain" as if its force and functions were purely intellectual.

Of these only the first three are at all fully tested by the present system, the fourth very partially, the others practically not at all. It may be said that a certificate of "good moral character" is required, which means, I think, that the candidate shall not be known by the writer to have committed any criminal offence; and that a certificate of sound health is required, which admits any man free from actual disease, physical defects, or deformities. Would anyone say that the Services were secured against the intrusion of idlers or dunces if a certificate that the candidate was intellectually "competent" was accepted from his schoolmaster or tutor? But it may be asked, "Are not the 'governing qualities' which occupy any intermediate position in my list so often found in combination with the more strictly intellectual qualities that their presence is sufficiently guaranteed by the present system"? To this question, all my experience as a schoolmaster for 35 years, and all the evidence I have been able to collect, as well as deductive arguments from physiological and other premises, induce me to give a distinctly negative answer, and to lay down, as the basis of a more rational system of selection, the following propositions:—

First.—These governing qualities are the most important of all, as factors in a man's success and usefulness in life; and this is more especially the case when, by natural or artificial position, he has to manage other men. A landed proprietor, *e.g.*, may be a scientific or scholarly man, and yet a very bad manager of his tenantry and estates, whereas another, whose brain was better developed in the region of the will and social instincts, would have succeeded far better in the same position, in spite of great intellectual inferiority.

Secondly.—"It passes the wit of man" to test the governing qualities directly, though I think that something might be done by allowing examiners large discretion in giving marks for impressions in *vivâ voce* examinations. Everyone who has to choose between candidates for any other post is greatly guided by such impressions, and will never, if he can help it, make an appointment without seeing the man. Why should the public Services be handicapped by a restriction which would injure any private concern? We can surely trust our examiners now that giving appointments by "interest" is considered by educated public opinion as a breach of trust of the most gross description. However, this suggestion is not material to the general argument of this paper.

Thirdly.—The governing qualities are very seldom found in combination with intellectual qualities, when the latter are not accompanied by a robust physique. There are, however, such strong though rare exceptions to this that I think that a certain proportion of appointments should be given as at present. Some of the very best men of all might be lost by a too hard and fast rule.

Fourthly.—They are somewhat more frequently found in combination with a robust physique, when the latter is not accompanied by intellectual qualities above the average, but they rarely co-exist, in a normal and useful condition, with any considerable inferiority of intellect.

Fifthly.—They are generally found to be most strongly developed when the last quality in my list—*i.e.*, physical robustness—is combined with the three first, *i.e.*, the intellectual qualities. This is no newly discovered principle. It is elaborately laid down in Plato's Republic. It was, however, ignored in China by those who organized her competitive examinations, and it has been similarly ignored by those who have organized one. And yet I am not aware that it has ever been seriously disputed.

This principle is the keystone of my position. Illustrations of it will occur to every practical man. I hope I may be allowed to give one or two from my own profession.

As the agents' lists will testify, a large number of us consider atlethic as well as intellectual qualifications in choosing assistant masters. In some cases this may be, because we think it is a good thing that masters should join in games, and hold their own in them, or because we want a good cricketer to help in coaching cricket; but these are not the main reasons, or why do we so often, although there is no boating at a school, prefer a man, other things being nearly equal, who has rowed regularly in his college boats? It is surely because experience shows that a man who has the physical development and energy, which usually go along with regular boating, is also likely to possess the governing qualities, and thus more likely both to have a strong influence over boys, and maintain discipline without friction; and further, as a result of this, to teach them more than the mere scholar or mathematician, if the latter has the feebler manner, voice, and presence, which so frequently co-exist with less vigorous personal habits.

The case of school prefects is parallel to this. No one who reads "Tom Brown" can fail to see the evil results of choosing prefects or "prepostors" on intellectual grounds only. Sometimes, as in old Brooke's time, a house was accidentally under the rule of a strong will and character, as a master appointed simply because he is a high classic or wrangler may happen to be an efficient form master. But, sometimes, as in Flashman's evil days, there was a "weak sixth," and resulting misgovernment and lawlessness. Experience has convinced me of what is surely the right principle, viz., that prefects should be appointed purely by selection; and a headmaster who consults competent house masters (*i.e.*, men chosen by governing capacity, and not by scholarship or seniority), and outgoing prefects should have no difficulty in making a right selection.

Now I appeal to any head master who has pursued this system, whether his experience does not agree with mine, and whether his prefects have not been almost exactly the same boys who would be chosen by a system of appointment which gave marks both for such intellectual qualities as can be tested by examination, and such physical qualities as can easily be marked and measured. There are certainly cases in which a boy may be intellectually and physically qualified for a prefectship, and yet he ought to be passed over because he is not of entirely trustworthy character; and I may say in passing, that the reluctance of an influential boy to remain at school when

he is so passed over, constitutes an excellent practical method of moral superannuation. But such cases cannot be altogether provided for by any public system of selection; and although allowing examiners to give marks for "impressions" at a *vivâ voce* examination might keep out some black sheep, yet I fear we must lay our account for importing a certain number of them into the public services, because formal evidence of character is nearly worthless, and any possible way of obtaining other evidence is delicate and difficult in the extreme. And, again, as it is certainly desirable that at school a few prefectships, not involving the government of a house, should be given on purely intellectual grounds, so some places in the public services should be given to men of exceptional ability, and without any more evidence of physical vigour than is required at present. With these exceptions, however, the same principles which hold good with regard to prefectships, and in a less degree with regard to masterships at schools, ought to be applied to all public services where governing powers are called into action.

And still more ought we to demand proof of such physical qualities as endurance and vigour for services like the Army, where they are directly useful. So far, I think, my position is unassailable. Nor, so far as I know, has it ever been directly assailed. It may fairly, however, be asked, "How are your principles to be carried out in practice"?

Three attempts, so far as I know, have actually been made in this direction since the inauguration of the competitive principle in this country.

First.—I believe that before competition was fully established, some Government Commissioners went down to Rugby School and picked out the two best "all-round" boys they could find for the Indian Civil Service. I may be inaccurate in this statement, but I believe that something of the kind was done. No plan could be more perfect than this in theory. Every schoolmaster worth his salt could pick out the boys best suited for the Army and the Indian and Home Civil Services respectively. The misfortune is that it is impossible to pick out the Rugbys. The best training school for the Army or the services may conceivably be in Wales or in the Highlands. For the Army, as a matter of fact, I believe that it is in the Highlands. But who is to decide as to the schools to be visited or as to the members chosen from each? The plan is ideal, but clearly impracticable.

Secondly.—Several years ago, a Commission (unanimously, I believe) recommended that marks should be given for five physical subjects, viz., mile running, high jumping, long leaping, gymnastics, and swimming, in the Army examinations. One hundred was to be the highest possible mark for each subject, and very moderate excellence (such as 5 feet for the high jump) was to give full marks, so as to discourage excessive physical strain. This unanimous recommendation was quietly shelved, though a languid debate, enriched by irrelevant commonplaces, has once or twice been raised about it in Parliament. Unfortunately, there was neither an election cry nor money in it; only such minor interests as the efficiency of our fighting forces or the strong government of our dependencies. The proposal, however, was clearly in the right direction. The few marks assigned might certainly affect but few appointments; but, so far as it went, it would have made it the interest of candidates to keep themselves in good physical condition, and to spend their leisure time in the open air instead of in less desirable places, and the interest of crammers and tutors to consider their pupils in some other light than that of coiners of marks by paper work. The modern schoolmaster of the best type has pretty well reversed a late head master's apothegm: "Madam, I am not here to teach your son morality; I am here to teach him Greek." In fact, it is now his interest almost to reverse it. It is a pity that it is not also made the interest of the crammers. But there are evidently practical difficulties in the way of carrying out this particular proposal; neither does it go nearly far enough in the way of encouraging endurance and hardiness. It also, I think, has a tendency to confer an injurious dignity and prominence upon what are distinctively called "athletics." There are fewer feeble, nerveless men among the competitors at an athletic gathering than in a scholarship examination room; but there are more coarse, objectionable men. We are, or ought to be, in search of a system which shall keep both these kinds out of our public services, so far as any system can do it.

The third attempt is the 25 or 30-mile walk* required from all candidates for the Woods and Forests. This seemed to me to be entirely in the right direction. It contains the germ of a principle which, if it were adopted, would not only obtain men of more vigorous physique and more manly habits, and possessing more of those qualities which ensure obedience and command respect, but it would also have far reaching beneficent results on the lives of boys and young men in schools and colleges throughout the land. Men who are opposed to a purely intellectual system of competition are often accused of giving undue encouragement to "athletics." I am sure I can speak for a large number of men as well as for myself when I say that overdone

* The word "walk" is not used here and elsewhere in its strict athletic sense. It is understood to include any method of unassisted progression on foot.

athletics appear to us to be as destructive of simplicity and manliness of life as an exclusive devotion to bookish and artistic pursuits. The big gates and the gladiatorial character of modern athletics, particularly of football, are greatly to be deprecated. The players are but a small fraction of those present, who are mainly young men who ought to be engaged in active exercise themselves, instead of idly looking on at others taking it. In fact, one of the most dangerous tendencies of modern civilisation is its indirect discouragement of a wholesome use of the legs. Artificial locomotion is so cheap and so abundant, that few except schoolboys and athletic young men, up to perhaps the age of 25, have their blood sufficiently oxygenated to ensure either a healthy body or a truly sound and healthy brain. There would therefore be great collateral benefits in encouraging good walking powers. Not only would we obtain for the services men of vigorous and hardy habits, useful in themselves, and also, as I have tried to show, closely connected with the development of what I have called the governing faculties, but we would practically teach all who aspire to competitive appointments the great benefit and, indeed, the great pleasure of such habits when acquired. We would create in them, whether successful or unsuccessful, a craving for wholesome exercise, and make the practice of it common and fashionable. All schoolmasters and tutors would also have their attention turned to all that concerns the true well-being of their pupils, the air they breathe, the food they consume, and the lives they lead.

If I had at this moment to make a definite proposal, I would suggest that certain walking powers should be imperative for those who aspire to the more active services (with the exceptions stated above), such as the Army, the Woods and Forests, or (with more exceptions allowed) for the Indian Civil Service. For the Home Civil Services, I think that such physical acquirements should not be imperative, but should merely carry so many marks. This is not the place for laying down a scale of marks; but surely any man who is physically vigorous enough for active service ought to be able to cover 30 miles within seven hours and a half by the help of his legs alone. I confess I would consider any boy of 18 who could not do this, on an emergency, either a weakling by nature or very softly nurtured. Gymnastics also should, I think, receive marks, more importance being attached to power than to style.

And, further, I think that every passed candidate, either for Woolwich or Sandhurst, ought to camp out without a servant, cooking his own rations and attending entirely to himself, the camp being organised on military principles, with plenty of drill and marching over open country. No young man who cannot stand this ordeal, and also fend for himself in any weather we have between April and October, is fit to enter the Army, and such a plan would keep out of it some of the weeds and fast horsey youths by which it is encumbered. I have known of such a camping out by four public school boys who had, as their guests, 20 working boys in one of the Hebrides during the stormiest weather of a wet summer. For three days their tents were leaking, and even a dry sleeping place was unattainable; for two days they could not even cook, but lived on oat cake and cold meat. Yet only one of the party caught even a slight cold, and they all heartily enjoyed roughing it. I am convinced that there would be much less mortality in some of our campaigns if all Officers had been proved fit to lead such a hard life; and an incidental advantage would be that those earnest seekers after truth, the military authorities, might learn something about a subject on which I fear they have much to learn, viz., the best material and mode of clothing and equipment for the rough work of campaigning. Padded tunics, pipe-clay, and other antiquated shams and absurdities would soon be discredited if these functionaries would learn a lesson from those who had to provide for themselves as best they could. I may mention that the boys who conducted the expedition mentioned above were the sort of stuff which makes the very best stamp of Officers. Boys who were more fit for a clerk's life than a soldier's would not have been happy under the circumstances. Another test very easily applied was suggested to me by a Government official who had had a great deal to do with examinations: it is that marks might be given for lung capacity, measured by the spirometer. Now, I have no experience of the working of the spirometer, nor of the exact relation between lung capacity and chest girth. But for the last 16 years, by the help of a serjeant-major accustomed to military measurements, I have kept a careful register of chest girths, taken three times a year on the bare chest.* And on referring to this register I find, as a matter of fact, although such a consideration never entered into my mind in making a selection, that there is scarcely an instance of a prefect who had a smaller chest girth than 38 inches, and that most prefects have considerably exceeded this measurement. I also find (and I may refer for corroboration to Mr. M'Laren's well-known book on that subject), that regular gymnastics, coupled with a habit of wholesome exercise in the open air, cause a great increase in chest

* I think it probable that the measurements to which I refer have been taken in a more liberal manner than is, at all events, the present custom. But there is no doubt that they have been taken in a thoroughly consistent manner three times a year—from 1874 to the present time—and they clearly establish that boys of 16 to 18, who have been subject to a good system of gymnastic and physical training, have an advantage over those who have not been so subject—to the extent of between 2 and 3 inches in chest girth. Giving marks to chest girth, or to breathing capacity, would make it pay, for those who prepared such boys for examination, to keep them in robust physical condition. This is my main contention, and its validity does not depend on the particular system of measurement adopted.

girth, and further, that where the chest girth does so increase, there is, for the time at least, an absolute immunity from lung disease, and a greater increased power of enduring exposure. In fact, on this line of evidence also, we not only come to the existence of a close connection between physical robustness and the governing qualities, but we can prove that by encouraging and rewarding the development of such robustness, we would greatly increase the practical efficiency of actually selected candidates, as well as the health and vigour of those who are not successful.

In this paper, I have simply attempted to enforce and apply general principles which no one, I think, denies, though they have been unaccountably ignored and neglected. Possibly such application of these principles as I have advocated would make little change in the list of successful candidates, though it would certainly eliminate some who are unfit either for any active service, or for bearing any kind of authority over others. It would certainly not introduce any who are intellectually unfit, for it is not proposed to discontinue in any case insisting upon a sufficient intellectual standard.

But the resulting benefits would, as I have tried to show, be of a very much higher order than the alteration of a few places on the lists. For it would be made imperative for those who wish to succeed to keep themselves in sound physical condition. It would keep them from dissipation and self-indulgence, as well as from physical indolence and an unwholesome proportion of sedentary employment. We would, I believe, get substantially the same men, but the same men with clearer complexions, better constitutions, cheerier tempers, and stronger wills. The crammers would still remain as they are, the best and most successful teachers; but if marks are to be won by turning out men as well as scholars and mathematicians, I give them credit for the ability to accomplish this as well as other ends.

And if we consider the case of the more numerous unsuccessful candidates, we shall find still greater advantages in prospect. At present a number of these are worn out by the undue strain on their intellect, combined with the necessary suspension of a wholesome physical life. They are, for the present at least, rendered unfit for active occupations. They have not the physique necessary for a colonist, or the high spirits essential for real success as a clergyman or schoolmaster. Under another spell of sedentary occupation as clerks in offices, their health would finally break down. But if they are thrown upon the world physically fit as well as intellectually accomplished, their way in life is made easier. Some no doubt may still break down from the nervous strain inseparable from any keen competition, but the number of those who do so will be lessened. But the influence of such a scheme would be by no means confined to those immediately concerned. All schools and all tutors would have an interest in promoting robustness and vigour of life. It may be said that the athletic movement is already overdone by many of the schools. So it is. It has produced many beneficial results; but, in its present condition, it is a huge *ignoratio elenchi*. The great aim is to produce distinguished athletes, and these, when produced, are partially spoiled by an inordinate devotion to athletics, and by wholly artificial and unwholesome prominence and publicity. But the aim of the schools ought to be not to produce a few athletic prodigies, but a large average of high health and manliness. For my own part, I would have more satisfaction in seeing a boy naturally feeble, able to come in from a 20-mile walk fresh and fit, with a swinging step and cheery voice, than in witnessing the most brilliant performance of the exceptional athlete. But our athletic system is as defective as our scholarship system. The intelligence of the athlete is often as little regarded as the vigour of the scholar. I wish to join together what ought never to have been put asunder. I wish to see our public competitions holding up a right and wholesome ideal to our schools, and applying the enormous force of their leverage towards improving, in every attainable direction, the breed of British men.

H. H. ALMOND.

APPENDIX XXII.

Report of Committee on Queen's Cadets, &c.

Secretary of State,

1. Your Committee have taken as their reference your minute of 8th December, 1892, on 100/Candidates/1373, which is as follows:—"With reference especially to the passage marked A, in Director-General of Military Education's minute of 29th November, 1892, I should be greatly obliged if the Committee would consider the conditions on which all classes of Queen's Cadets enter the Army, and make any recommendations they see fit, &c." The passage in the Director-General of Military Education's minute referred to is as follows:—"I think it would be beneficial if some steps were taken to secure that Queen's Cadets are better educated than they often are. I imagine that the object of giving a money allowance from the age of 13 was to enable the Cadet to obtain an education which his mother's means would not otherwise enable her to secure for him. Instead of this it becomes a guarantee for his entering Sandhurst without that education. To give money for education and then to admit on a low qualification seems to me to be illogical."

2. A Queen's Cadet has two privileges—

(1.) He is allowed to enter Sandhurst, and so obtain a commission eventually after passing a qualifying examination only.

(2.) He is granted an educational allowance of 40*l.* a-year between the ages of 13 and 17, and is exempt from payment of any contribution while at Sandhurst.

Queen's Cadets appointed by the Secretary of State for India (and styled Queen's India Cadets) and Honorary Queen's Cadets enjoy the former privilege only, the former, however, being also exempt from payment at Sandhurst.

There are 30 Queen's Cadets, of whom 10 only may be at Sandhurst at any one time, the remainder being in receipt of the Educational Allowance, 10 Honorary Queen's Cadets, 20 Queen's India Cadets, and 5 Honorary Queen's India Cadets.

3. Your Committee have enquired into the standard of qualification required of these Cadets, and have compared their efficiency as shown by the marks actually obtained in the examination with that of other qualified Candidates who have failed by reason of the competition.

4. They have also reviewed the circumstances in which grants in aid of educational expenses are made to boys appointed to Queen's Cadetships.

5. Your Committee find that an examination of Returns show the following results:—

Date of examination.	Number of marks obtained by			No. of Queen's Cadets* who would have been successful by competition.	No. of Queen's Cadets* who would have been unsuccessful by competition.	Total Queen's Cadets.*
	Highest qualified unsuccessful (competitive) Candidate.	Highest Queen's Cadet.*	Lowest Queen's Cadet.*			
July, 1891 ..	5,716	6,780	3,012	3	9	12
Dec., 1891 ..	6,326	6,480	3,064	1	10	11
July, 1892 ..	6,643	6,453	3,267	..	11	11

6. Your Committee recognize that these figures show that whereas the best of the Queen's Cadets* would be placed low, if at all, amongst the successful candidates, if entrance were solely by competition, the worst of them would fail by some 3,000 marks to obtain a place at all.

7. Your Committee consider that not only does this system not provide the public with best value, but the justice of it from the point of view of the higher qualified but unsuccessful competitive candidates may be well called in question.

* This expression here includes all the classes of privileged Cadets mentioned in paragraph 2.

8. Your Committtee accordingly recommend that the minimum number of marks required for qualification be raised.

9. (i.) The standard of qualification is fixed by the Civil Service Commissioners and the minimum number of marks is now 3,150, being in process of being raised to 3,200 from 3,000 by 50 at each examination. We have consulted the Commissioners and understand that no objection would be made to the minimum being raised to 5,000 marks, but that due notice of the alteration would have to be given; while Lord Sandhurst suggested the minimum being raised to 5,000 marks, Sir R. Biddulph and Sir R. Gipps considered that the case would be sufficiently met by the standard being raised to 4,000 marks.

(ii.) Coupled with this we consider should be a requirement of a standard of qualification in arithmetic.

10. A further question has been considered by your Committee, as regards the numbers of these Cadetships.

11. As shown in paragraph 2, no more than 10 of the Queen's Cadets may be at the Royal Military College at any one time, so that by the introduction of the three-term system the number of these Cadetships to be given annually has been reduced by one-third. The India Office have, however, objected to a corresponding reduction in the number of India Cadets, and we were enabled to hear their view from Lieut.-General Gordon and Major-General Newmarch, who attended one of our meetings. These Officers urged that by Statute the India Government are entitled to 20 Queen's Cadetships a year (21 and 22 Vic., Cap. 106), and that the requirements of India remaining unchanged, *i.e.*, the demand for Officers for that country being the same, there is no necessity for a reduction such as has been suggested.

12. Your Committee consider that the question is mainly one of accommodation. So long as there may be room for the presence of 30 Queen's India Cadets at any one time no objection need be raised to the maintenance of the present numbers. At the same time a reduction of the Honorary Queen's India Cadetships may fairly be granted by the India Office, as the number of these is not regulated by Statute in any way; and we submit that the India Office be asked to forego the 5 Honorary Queen's India Cadetships referred to in paragraph 2, and to satisfy the claims of the class to whom these have hitherto been given out of the 20 now allowed for Queen's India Cadetships alone.

13. The normal number of Queen's Cadets, &c., to be admitted half-yearly will then be as follows:—

Queen's Cadets	3*
Honorary Queen's Cadets	5
Queen's India Cadets	10

14. This arrangement will have the result of maintaining 30 Queen's India Cadets at the Royal Military College at all times, instead of 20 as hitherto, and will, consequently, entail an increased cost on the Army Estimates if all these Cadets are to continue to be educated free of charge.

15. The charge against the public of the Royal Military College arises from the fact that all the Cadets do not pay the same contribution, which, to make the institution self-supporting, it is estimated should be at the rate paid for the son of a private gentleman.

16. At present Indian Funds bear half the cost of the College, and, assuming that this division is equitable, it follows that an alteration in the proportion of advantage from the school enjoyed by the Home and Indian Services respectively, ought to be accompanied by a re-division of the charges.

SANDHURST.

ROBERT BIDDULPH, *General*, *Q.M.G.*

REG. GIPPS, *Lt.-Gen.*, *M.S.*

R. H. BRADE,
Secretary.

25th March, 1893.

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* Every third term an additional Queen's Cadet will be admitted so as to make up the total of 10, which the Regulations allow, *see* paragraph 2. If the course at Sandhurst be reduced subsequently the number of admissions, half-yearly, of Queen's Cadets will, of course, be proportionately increased.

APPENDIX XXIII.

Parents or guardians who request information as to the points to which special attention is paid by the Army Medical Boards, or who ask for a special examination of a candidate, are replied to by the accompanying form, with memorandum of "Points to be observed, &c."

The "Declaration" form is supplied to each successful candidate on his examination by a Medical Board.

Horse Guards,
War Office, SW.,
, 189 .

In reply to your letter of requesting that may be examined by the Army Medical Department, with the view of ascertaining his physical fitness for a commission, I am directed by the Commander-in-Chief to acquaint you that as the finding of the Medical Board at this stage could not be regarded as final, and under any circumstances Mr would again have to be medically examined on offering himself for the competitive examination, it is not considered expedient to accede to your application.

Enclosed, however, is a memorandum which fully sets forth all the physical tests required of Army candidates, which may be a guidance to the candidates, and to any Civil Practitioner whose opinion he may wish to obtain.

I have the honour to be,

Your obedient Servant,

POINTS to be observed at the Medical Examination of Candidates for Commissions in Her Majesty's Army.

A candidate for a commission in Her Majesty's Army must be of pure European descent, in good mental and bodily health, and free from any physical defect likely to interfere with the efficient performance of military duty.

In the medical examination of a candidate previous to admission to the Royal Military Academy or Royal Military College, attention will be directed to the following points:—

That his height and chest measurement are such as give promise that before obtaining his commission he will reach the present minimum standard laid down for recruits, viz., height, 5 feet 4 inches; chest measurement, 33 inches.

That his vision is sufficiently good to enable him to meet the required tests.

That his hearing is good.

That his speech is without impediment.

That his teeth are in good order—loss or decay of many being considered a disqualification.

That his chest is well formed, and that his heart and lungs are sound.

That he is not ruptured.

That he does not suffer from varicocele or varicose veins.

That his limbs are well formed and fully developed.

That there is free and perfect motion of all the joints.

That his feet and toes are well formed.

That he does not suffer from any inveterate skin disease.

That he has no congenital malformation or defect.

That he does not bear traces of previous acute or chronic disease pointing to an impaired constitution.

The regulations regarding the examination of eyesight are as follows :—

Letters and numbers corresponding to Snellen's Optotypi (Test Types for the Determination of the Acuteness of Vision, 1892 edition), will be used for testing the standard of vision. If a candidate's vision, measured by Snellen's test types, be such that he can read the types numbered D = 6, at 6 metres, or 20 English feet, and the types numbered D = 0·6, at any distance selected by himself, with each eye separately, and without glasses, he will be considered fit. If a candidate cannot read with each eye separately, without glasses, Snellen's type marked D = 36, at a distance of 6 metres, or 20 English feet, *i.e.*, if he does not possess one-sixth of Snellen's standard of normal acuteness of vision, although he may be able to read the types, D = 0·6, at some distance with each eye, he will be considered unfit. If a candidate can read with each eye, separately, Snellen's types numbered D = 36, at a distance of 6 metres, or 20 English feet, without glasses, but cannot read them beyond that distance, *i.e.*, if he just possesses one-sixth of normal acuteness of vision, and his visual deficiency is due to faulty refraction, he may be passed as fit, provided that, with the aid of correcting glasses, he can read Snellen's type, D = 6, at 6 metres, or 20 English feet, with one eye, or, at least, Snellen's types, D = 12, at 6 metres, or 20 English feet, with the other eye, and at the same time, can read Snellen's type, marked D = 0·8 with one or both eyes, without the aid of glasses, at any distance the candidate may select.

Squint, inability to distinguish the principal colours, or any morbid condition, subject to the risk of aggravation or recurrence in either eye, will cause the rejection of a candidate.

DECLARATION.

I,

declare upon my honour—

1st. That I am not, as far as I know, at present suffering from any mental or bodily infirmity, or physical imperfection or disability that is likely to preclude me from efficiently discharging the duties of an Officer in any climate.

2nd. That I will fully reveal to the Medical Board, when physically examined, all circumstances within my knowledge that concern my health.

I also declare that my vision is good with either eye (with or without the aid of glasses, as the case may be).

Signature _____

Date _____

N.B.—This declaration, after being filled up and signed by the candidate, should be handed by him to the Medical Officers whose duty it will be to examine him as to his physical fitness for military service.

Candidates who wear glasses are expected to bring them with them.

APPENDIX XXIV.

Cavalry and Infantry of the Line,

Return showing the number of Lieutenants and Second Lieutenants who have, since January, 1890, been granted periods of sick leave of six months and upwards during the first five years of their service.

	At Home.	From the Colonies.	From India.	From the West Indies and Sierra Leone.	Remarks.
Cavalry.					
Lieutenants	..	1	8	..	
Second Lieutenants ..	4	1	23	..	
Total	4	2	31	..	
Infantry.					
Lieutenants	7	12	59	11	
Second Lieutenant ..	3	15	63	10	
Total	10	27	122	21	
Total Cavalry and Infantry	14	29	153	21	

The following shows the number of Officers with less than five years' service, who have proceeded on long sick leave in each of the years covered by the Return:—

	Home.	Colonies.	India.	West Indies, &c.	Total.
1890	5	3	50	7	65
1891	4	6	38	7	55
1892	4	10	33	6	53
1893	1	10	32	1	43

The following shows in which year of their service the Officers enumerated in the Return proceeded on sick leave:—

	Home.	Colonies.	India.	West Indies, &c.	Total.
In 1st year of service ..	4	6	19	1	30
In 2nd „ „ ..	1	8	54	11	74
In 3rd „ „ ..	8	2	42	6	58
In 4th „ „ ..	1	11	24	3	39
In 5th „ „ ..	..	2	14	..	16

Retirements from Cavalry and Infantry on account of ill-health during 1889, 1890, 1891, 1892, and 1893, in the ranks of Second Lieutenant and Lieutenant.

	Home.	India.	Colonies.	West Coast of Africa and West Indies.	Remarks.
1889	4	4	2	..	
1890	1	3	..	1	
1891	7	6	1	2	
1892	5	3	2	1	
1893	5	3	2	1	
	22	19	7	5	
Total ..	53				

M.S. 2,
4th December 1893.

HORSE GUARDS, WAR OFFICE,
28th November, 1893.

ROYAL ARTILLERY.

RETURN of Officers of Royal Artillery who, during the past five years, have been placed upon half-pay, or compelled to resign their Commissions on account of ill-health whilst in the first five years of their service. Also of Officers similarly circumstanced as to service, who have had long periods of sick leave, under Article 258 of Pay Warrant.

	At Home.	In Colonies.	In India.	In West Indies and Sierra Leone.	Remarks.
To Half-pay, &c.					
Second Lieutenants ..	2	1	..	..	
Lieutenants	1	3	1	..	
Total	3	4	1	..	
Sick Leave.					
Second Lieutenants ..	1	..	2	..	
Lieutenants	1	..	3	..	
Total	2	..	5	..	

A. WILLIAMS,
D.A.G., R.A.

HORSE GUARDS, WAR OFFICE,
13th November, 1893.

Royal Engineers.

Return of Officers of Royal Engineers who, during the past five years, have been placed upon half-pay or compelled to resign their Commissions on account of ill-health whilst in the first five years of their service. Also of Officers similarly circumstanced as to service who have had long periods of sick leave, under Article 258 of Pay Warrant.

	At Home	In Colonies.	In India.	In West Indies and Sierra Leone.	Remarks.
To Half-pay.					
Second Lieutenants ..	..	..	..	..	
Lieutenants	1	1	..	..	
Total ..	1	1	..	..	
Sick Leave.					
Second Lieutenants ..	2	..	..	..	
Lieutenants	..	1	..	..	
Totals ..	2	1	..	..	

J. HERIOT MAITLAND,
D.A.G., R.E.

Horse Guards, War Office,
15*th November*, 1893.

APPENDIX XXV.

Returns showing the Number and Percentage of Gentlemen Cadets who joined the Royal Military College and Royal Military Academy, from 1889 to 1893 inclusive, under the Minimum Standard of Height and Chest Measurement.

Royal Military College.

Date of joining.	Number of Gentlemen Cadets admitted.	Height. 5 ft. 4 in.	Chest, 33 in.	Total under standard.	Percentage under standard.
		No.	No.		
February, 1889	180	3	23	24	13·33
September, 1889.. ..	182	3	37	37	20·33
February, 1890	181	3	31	32	17·68
September, 1890.. ..	186	3	54	55	29·57
February, 1891	182	4	51	52	28·57
September, 1891.. ..	184	3	50	50	27·17
February, 1892	145	2	29	30	20·69
September, 1892.. ..	152	4	24	27	17·76
February, 1893	126	1	18	18	14·28
September, 1893.. ..	123	4	34	36	29·26
Total	1,641	30	351	361	22·00

EDWARD CLIVE, *Lieut.-General,*
Governor, Royal Military College.

16*th December*, 1893.

ROYAL MILITARY ACADEMY.

Time of joining.	Number in batch.	Under height measurement. 5 feet 4 inches.	Under chest measurement. 33 inches.	Total under standard.	Percentage under standard.
March, 1889 ..	81	3	3	3	3·70
September, 1889..	60	1	1	1	1·66
March, 1890 ..	60	..	..	..	..
September, 1890..	60	1	6	6	10·00
March, 1891 ..	61	2	10	10	16·39
September, 1891..	60	2	8	8	13·33
March, 1892	50	3	5	6	12·00
September, 1892..	50	4	6	7	14·00
March, 1893	50	1	22	22	44·00
September, 1893..	50	1	15	15	30·00
Total ..	582	18	76	78	13·4

WOOLWICH,
11*th December*, 1893.

J. M. MURRAY, *Colonel*,
for Governor, Royal Military Academy.

APPENDIX XXVI.

RETURN showing the number of Gentlemen Cadets who left the Royal Military College and Royal Military Academy under the required Standard of Height and Chest Measurement, for the years 1889 to 1893 inclusive, distinguishing the numbers who were not commissioned by reason of such deficiency.

ROYAL MILITARY COLLEGE.

Term.	Total number leaving each term.	Numbers under the standard.			Numbers not commissioned, being under the standard.		
		Height. 5 ft. 4 in.	Chest measurement. 33 inches.	Total.	Height. 5 ft. 4 in.	Chest measurement. 33 inches.	Total.
July, 1889	..	Measurements were not taken except on admission.					..
December, 1889 ..	..						
July, 1890	..						
December, 1890 ..	183	3	Measurements were not taken.	3	..	..	..
July, 1891	186	1	6	7	1	..	1
December, 1891 ..	182	2	14	16	..	..	..
July, 1892	183	2	15*	16	1	1	2
December, 1892 ..	109	1	2	3	..	..	..
July, 1893	92	..	3	3	..	2†	2†
December, 1893 ..	77	1	1	2	Result of examination not yet known.		

* Includes one also under height. † Not yet commissioned; names are noted for special corps.

8*th January*, 1894.

C. J. EAST, *Major-General*,
Governor, Royal Military College.

ROYAL MILITARY ACADEMY.

Term.	Total number leaving each term.	Numbers under the standard.			Numbers not commissioned, being under the standard.		
		Height. 5 ft. 4 in.	Chest measurement. 33 inches.	Total.	Height. 5 ft. 4 in.	Chest measurement. 33 inches.	Total.
February, 1889 ..	73	No record prior to February, 1891.					
July, 1889	64						
February, 1890 ..	62					..	..
July, 1890	69						
February, 1891 ..	62	..	1	1	..	..	..
July, 1891	69	1	1	1	..	..	..
February, 1892 ..	60	..	..	..	..	..	..
July, 1892	60	..	2	2	..	..	..
February, 1893 ..	59	..	3	3	..	..	..
July, 1893	57	..	1	1	..	..	..

WM. STIRLING, *Lieut.-General,*
Governor, Royal Military Academy.

WOOLWICH,
5th January, 1894.

APPENDIX XXVII.

From General Sir George Willis, K.C.B., &c., to the Right Hon. Lord Sandhurst, &c.

118, Eaton Square, S.W.,
29th September, 1893.

My Lord,

Referring to your position as Chairman of the Committee on Military Education, now sitting, I take the liberty of forwarding, for your Lordship's perusal, a copy of a letter on the subject of educational tests now applied to candidates for commissions in Her Majesty's Army, which was addressed by me to the Director-General of Military Education, on the 6th April, 1890.

My reason for troubling you with my views on this important subject is the progressivly decreasing physical energy of the Officers entering the Service under the existing system, especially in Infantry regiments.

This is shown by the little interest taken in physical work and amusements, such as cricket, football, rowing, athletics and sports in general.

I know that I have been told by some in authority that Officers are not now the idle fellows they were in former times, that they are fully occupied with their studies and instructions, and that they are mostly good specimens of young men of their class.

This is true to some extent, but it does not account for all the falling off in physical and mental activity shown by so many Infantry Officers, and in the event of a long and hard campaign, this change will be severely felt.

In order to be an efficient leader of men, an Officer must be active, mentally and physically, because, on service, he should be capable not only of leading his troops, but also of seeing to their comfort after prolonged exertion.

At such times, the men may lay down and rest, unless detailed for duty, not so the Officer, who should be actively seeing that supplies are properly served out, and his men made as comfortable as possible.

If he is ordered on outpost duty, the Officer should be about and active all night, this cannot be done after a hard day's work without physical fitness, and yet there is actually no training or tests whatever for such qualities in our candidates for commissions, except a standard of height, lately enforced, indeed the present system actually eliminates such men from the Army.

If your Lordship turns to the results of the present system of test for entering Sandhurst College, you will find that the "order of merit" of candidates passing in is considerably reversed in passing out, because the instruction at Sandhurst is more practical and physical than the instruction given to candidates before their entrance examination, and when the Officers join their regiments their order of merit, in a military point of view, is still further reversed.

If the present purely pedantic system is correct, it will stand the test of enquiry into its results. If the names of the three or four young men at the top of each list of those who passed into Sandhurst from the earliest institution of the system are taken and followed through their Army Service, it can easily be determined if they have distinguished themselves as Officers more than those lower on the list. If they have not, why continue a system, which not only fails in its initial object, but also actually tends to eliminate the most useful, physically fit, all-round men from the Military Service?

I have, &c.,
G. H. S. WILLIS, *General.*

To the Director-General of Military Education.

18, Eaton Square, S.W.,
Sir, 6th April, 1890.

For the consideration of His Royal Highness the Commander-in-Chief, I have the honour to submit the following observations on the education of candidates for Army Commissions.

In the year 1873 an effort was made to introduce physical tests, as well as menta, for gentlemen seeking to enter the Army as Officers.

The proposal was favourably received by the then Director-General of Military Education, General Pocklington, and by his Assistant, Major Barker, but it was unsuccessful at that time, chiefly from the opposition of some within the Horse Guards.

Since that date the question has been brought forward on several occasions, notably in 1877, by Mr. Bowen; and in 1878 Lord Hampton submitted to the War Office a memorandum embodying Mr. Bowen's proposals.

This resulted in the formation of a Joint Committee of the Civil Service Commissioners and the Head-Quarter Staff for the purpose of considering the question.

This Committee took the opinion of about 20 heads of colleges, including the two great Military Schools, whose opinions were almost unanimously in favour of physical education and tests, and the Committee reported in favour of the scheme, but it again fell through, on the grounds of the assumed difficulties in the way of practically carrying out the proposals, and that the existing system produced perfectly satisfactory results.

The recent public utterances of His Royal Highness the Commander-in-Chief, and others of the Head-Quarter Staff, lead me to believe that a change is taking place in the opinions of those in military authority, and that the time has come when the value of some physical training for the future Officers of the Army is recognized.

Throughout my service I have been nearly always employed with the troops, and I have turned my attention greatly to the physical qualities of the Officers and men, not only as amongst themselves, but also in comparison with the Navy, and with the average of men not in the Army.

The more or less physical difference in the rank and file of the home troops during the past 15 years, is easily accounted for by the low average age of the men, and by the fact of the pick of the youth of the country going to the police, to the railway, or to the numerous employments requiring physical qualities, which have become increasingly open to them. But with Officers it is different, and in their case none of the above reasons operate, on the contrary, there are plenty of the finest and most eligible young men in the country anxious to take service as Officers, but who are excluded by, or who will not submit to, the pedantic system of test which now exists.

In some of my reports from the Southern District, I called attention to the want of improvement in the physical qualities and activity of the Officers generally, but I was informed that my opinions were not borne out by the specimens then at the Military Colleges.

I allow that there are many fine specimens of young men in the Army as Officers; but, taking into consideration the immense stride which has been made in the athletic work of young men within the last decade, the rising Officers of the Army should show a far greater physical fitness and energy than is observable amongst them, and I believe they would do so, if every endeavour was not made, by the existing system of tests, to exclude from the Service a very large percentage of the most physically fit.

The vulgar belief that the possession of physical powers detracts from the mental, has been quite exploded by the tests applied by the Anthropological Association to a large number of first-class men and senior wranglers at the Universities, and history has only to be studied to learn how much the success of men of mental ability has

depended upon their physical fitness to endure the strain upon their muscular and nervous powers; and how many men of weak physique have broken down under the struggle for the survival of the fittest?

In the Army this must always be essentially the case, and yet the only steps taken to test the fitness of candidates is to subject them to the over-mental pressure of the crammer, which results in depriving them of all physical training, from want of time, and causes the elimination from the Army, to a very large extent, of those "all-round men" who make the very best Officers.

The present theory seems to be, that all Officers should be highly-educated scientists; but, as a matter of fact, the education obtained from the crammers and required by the examiners, is no useful education at all in respect to many subjects, and is of little afteruse to an Officer in the Army, more than 90 per cent. of whom are required to be practical leaders of men, and to be capable of leading their companies or battalions through the hardships and privations of war, and of setting an example to their men in times of difficulty and danger. For this work, hard, ready, "all-round" men, with quick perceptive powers and good practical judgment, are the best; and such powers are best obtained by an admixture of rough, practical work with the purely theoretical training which now obtains.

For the small comparative percentage of men required for the administrative duties of the Army, there will always be plenty of Officers available—men of undoubted mental ability, or those who may show marked aptitude for the work during the time they are being well grounded in the practical duties of the Service; and such men, with the help of the Staff College, will prove the very best for such employment, and their conduct and ability, whilst with troops, will be the best test of their fitness for directing and governing them.

From information I have obtained from masters in public schools, the opinion in favour of physical training being carried out, *pari passu*, with that of mental, appears to be very strong, and it is stated, that boys are encouraged to engage in athletics, and are made to take part in school games, because such training helps so much to keep them from falling into the low standard of "loafers" and idlers, a class which rarely turns out well, either at school or in after life.

Evidence being so strongly in favour of physical education in combination with mental, the question arises as to a method for practically testing the results.

There are two methods for arriving at results which may be used in conjunction. Firstly, by measurements, which can be easily applied in order to determine the chief elements of physical efficiency (and it may be here observed that, so far as I am aware, there is at present no actual standard of measurement whatever for Officer recruits); and, secondly, by testing the physical powers and aptitude of candidates practically. These latter tests need not be carried out by actual competition, in the usual acceptation of the word.

In my opinion, it would be preferable to direct candidates to report themselves at Aldershot at any time after their first metrical examination by measurement, &c., and before a given date, within about a fortnight after the mental examination.

I propose that, on arrival, the candidates should be sent to the gymnasium, and should there be put through a test course of gymnastics and swordsmanship by the Superintendent; they could then be tested in walking and running, for endurance, and in jumping, by the same Officer. The test for riding could be carried out in a riding-school by a Riding-master.

Both the above Officers would be well able to award marks for efficiency very fairly, by reason of their constant observation of the performances of their men under instruction; but, if considered desirable, two other Officers could be associated with them. Swimming and diving would be a difficulty, except in summer; but, as they are of the least importance, I have placed a low maximum figure against them, or they could be omitted.

Whatever marks the candidates may obtain in these physical tests, up to a fixed total maximum, should be added to those which they gain for mental qualities, and the sum should be their figure of merit, and should give them their place on the general list of candidates.

The first, physical tests by measurement, &c., should be obligatory. The second, practical tests, should be optional.

As the dates for these latter tests would be spread over some 10 or 12 days, there need not be any pressure of numbers on any one date, and the candidates would not be called upon for any undue exertion in actual competition with each other.

The subjects for test, and the maximum marks obtainable in each, might be approximately as under:—

	Marks.
Measurements, &c., for physical fitness	300
Gymnastics	400
Swordsmanship	400
Walking and running, for endurance	400
Riding	300
Jumping, high and long	200
Swimming and diving	100

Not more than a total of 1,000 marks to be credited to any one candidate.

If considered desirable, the above list may be more sub-divided, or modified.

The measurement tests would consist of measures of apparent physique, of keenness and correctness of eyesight and of hearing, of nerve and muscular quickness, of muscular strength and endurance, and of breathing capacity; all carried out on the anthropometrical system, which would enable the medical examiner to test and examine each candidate in a few minutes.

My object in bringing forward these proposals is to endeavour to counterbalance the effects of the present system of mental tests only, which excludes from the Army so many desirable young men who attain to about the border line of mental apparent power; many of them far better suited, in general qualities, for the Service than those who now succeed in entering.

The tests of mental capacity alone are at all times uncertain and misleading, depending, as they now do, in a great measure, on the accuracy of the crammers in gauging the idiosyncrasies of the examiners, and also on the chance of a candidate having studied especially in the narrow groove in which the examination may run, to say nothing of the catch words and phrases and the crotchets of the examiners.

The present system of pure cram does not give a generally sound and useful education, and it produces an after distaste for that maturer study by which men are most usefully prepared for their higher duties and work in after life.

To candidates of a high mental quality and general ability, physical tests will make but little difference, but to those who are near the border line between success and failure, they will be of great consequence.

There are very many men with about the same mental capacity but with very different physical powers and habits of activity. At present, the men not far above the dividing line, may be physically indolent, unenergetic, weakly bookworms, whilst those just shut out may be, and often are, fine, active, ready young men, whose physical energy and taste for the rougher, "all-round" work of active life, whilst fitting them best for Army Service, has stood in the way of their taking a higher place in mental examinations.

Presuming that the object of examination is to get the best Officers for active service in the Army, which, may I ask, of these classes of young men would prove best fitted for the rough work of war?

If there was even greater mental inequality on the part of the physically fit, his bodily powers and endurance would more than counterbalance any such slight mental defects, and would make him a far more useful public servant for the purpose of training troops during peace, and for leading them in war.

If some system, as sketched above, can be adopted, after due notice, I believe it will immensely increase the value of Officers of the Army for active military purposes.

I have, &c.,
G. H. S. WILLIS, *General.*

APPENDIX XXVIII.

The Grove, Harrow,
7th December, 1893.

Lord Sandhurst having referred to a communication which I made in 1878, to a Committee of the department, with regard to the possible addition of physical tests to the competitive examinations for entrance to the Army, I am glad to have the opportunity of adding now a few lines on the subject. I still think that the suggestion then made was a good one. It seems merely just that physical excellence should have a share, though a subordinate one, in securing admission to the Army. But, unfortunately, as I think, the suggestion of mere physical tests, accompanied by a scale of marks, was developed by the Committee into an elaborate scheme for a gymnastic and athletic competition which would have been difficult and tedious to carry out, and when carried out would have been open to numberless objections. But there is every difference between the advanced scheme and the modest proposal for an "anthropometrical" inspection of the candidates, the latter would proceed on lines clearly marked out, and on which, in the last few years, experiments have been successfully conducted.

Such a physical examination as I am thinking of could not involve any muscular feats or any gymnastic exercises. A doctor could in less than a quarter of an hour determine with absolute accuracy the height of each candidate, his measurement round the chest, the accuracy of his eyesight, the capacity of his lungs, and could assign a further mark for his general appearance of health and strength on the day on which he came for inspection. No questions with regard to his past physical history or his present athletic powers need or should be asked. The general result of the marks given should be printed afterwards, but without the details of the several tests. I venture to suggest that it would be well to make the maximum mark rather low, even unduly low, at first, until the process has become familiar, and had gained public confidence.

I think that, within such limits as these, the examination could be both successful and useful. I cannot believe that it could go beyond them with any reasonable hope of success.

E. E. BOWEN.

APPENDIX XXIX.

Notes on the Evidence given before the Committee on Entrance Examinations into the Army.

Assuming that the desire of the War Office authorities is still to obtain candidates who have—

1. (As recommended by the Royal Commission of 1869-70), been educated up to the date of the examination in the public schools.

2. (As laid down in the memorandum of the Director-General of Military Education in 1888), received "a thoroughly well-grounded education as English gentlemen."

I consider—

(*a.*) How far these objects would be attained by the schemes of examinations suggested in the course of the enquiry.

(*b.*) How far they are attained by the existing scheme.

A.—Five new schemes have been suggested.

1. Captain James proposes five obligatory subjects—mathematics, a foreign language, geography, English history, geometrical drawing. (To these he subsequently added English composition.)

He does not state how many marks he would assign to mathematics, but he would mark the other subjects—

Foreign language	2,500*
Geography	2,000*
English history	2,000*
Geometrical drawing	1,000*
English composition	1,000*

He would have a Class II. of optional subjects as at present, including higher mathematics, languages, and scientific subjects. Higher mathematics he would mark—

3,000 for Woolwich.
2,000 for Sandhurst.

The languages would be for the most part modern, and the list given is of such an exhaustive nature, that only modern Greek, Servian, and Bulgarian, seem to be required to make it include all the languages of Europe; to each of these 2,500 marks is assigned. Ancient Greek is also included, but is allowed only 2,000 marks. Latin occupies a kind of limbo in Captain James's scheme; in one place he puts it Class I., with a very low minimum attached to it, out of a maximum which he does not name; while in another place he proposes to put it into Class II., giving it 2,000. He would also include different scientific subjects, apparently marking each at 2,000.† Candidates would be allowed to take two subjects out of this class, and one out of Class III., but apparently the only subject left for this class is freehand drawing.

I express no opinion as to whether the list of obligatory subjects would satisfy the condition (2) laid down by the late Director-General of Military Education, that all candidates should have received "a thoroughly well-grounded education as English gentlemen." I observe, however, that Captain James starts with the principle "you ought to have an examination which will bear in mind the ultimate destination of the examinee."

But with respect to the principle, that as many candidates as possible should come straight from the public schools, it is certain that Captain James's scheme, as a whole, would greatly restrict the field of selection. In the first place, Latin and Greek, which are universal subjects in the public schools (both subjects being taught on the classical side, and Latin on the modern side), are only marked at 2,000. The effect of this would be practically to eliminate these subjects from the candidates' choice. Again, science, which is generally taught on the modern sides of public schools, is disfranchised, as it does not appear in Class I., and is fatally handicapped in Class II. by its inferior marking.† On the other hand, modern languages are advanced to a position of para-

* Since the above notes were sent to the Committee, Captain James has slightly altered his scheme which he had previously not put into a formal shape. The alterations, however, are not such as in any way to affect my criticisms on his scheme as a whole.

† In his latest scheme, Captain James raises the marks for science to 2,500, thus raising this subject to an equality with modern languages.

mount importance, since one such language is required as obligatory, two more may be taken as optional, and the latter are in effect made compulsory by the superior marks assigned to them. The effect of Captain James's scheme would be to prevent candidates from receiving the ordinary public school education, and to oblige all candidates for the Army to receive a more or less specialized form of education.

2. Mr. Wolffram. (*See* Appendix for his scheme of examination.)

The effect of Mr. Wolffram's proposal is (1) to erect the old preliminary examination into the obligatory part of the competition for Sandhurst and for Woolwich, except in mathematics, giving a predominant position to geography; and (2) to extend the list of optional subjects, marking them on the same scale as at present, but allowing each candidate to take three instead of two subjects.

Viewing the proposal educationally (Principle 2) it is plain that with this scheme (*a*) geography would assume a place in the "well-grounded education of an English gentleman," quite disproportionate to that which it holds at present; (*b*) that a candidate might get into Sandhurst with next to no knowledge of mathematics or modern languages; (*c*) that, by the great extension of the optional list, candidates could make combinations of subjects which are easiest for the purposes of examination.

As regards the public schools, it is plain that, under such a scheme, the private tutor would have an immense advantage, because (*a*) in regard to the position assigned to geography no public school of high standing would be likely to adapt its curriculum to meet such an examination; while (*b*) boys educated on the classical side and taking, say, Latin, Greek, and mathematics from Class II., would contend, on an equal footing in respect of marks, against boys taking, say, French, Italian, and English history, subjects which can be mastered with infinitely less of intellectual effort. Hence the field of selection would undoubtedly be narrowed.

3. Mr. Shenstone proposes subjects for Woolwich; compulsory, German, mathematics and science; optional, French, Latin, Greek, any two of them.

For Sandhurst; compulsory, mathematics, German, French; optional, Latin, Greek, science, history, any two of them.

His expressed view is in conflict with Principle 2. He says, "These examinations are meant to discover the right people for going into the Army." His evidence throughout shows that he considers that the school education of candidates for the Army schools should be semi-professional. His scheme would compel boys to make up their mind from the first beginning of their school life to receive the training he proposes for them; it would exclude those boys who only turned their thoughts towards the Army when their school life was drawing towards its close. To this extent it would narrow the field of selection.

4. Dr. Percival. (A.)—*Literary Examination.*—Proposes (1) a list of five obligatory subjects with a plucking minimum for four. These are mathematics, French, German, special portion of natural science, and Latin; (2) a list of optional subjects, viz., the advanced stage of any of the obligatory subjects, *plus* English history and Greek; any two to be taken.

As to the effect of such a scheme. In the first place the range of compulsion would be greatly increased, and to that extent the field of selection would almost certainly be diminished. Parents would not run the risk of leaving their sons at school where they certainly could not get so much tuition in all the subjects specified as they would get with a crammer. They would send them to a crammer to grind at the prescribed course from an early age.

In the second place, seven subjects are more than the average boy can thoroughly master. Dr. Percival sees this, and is prepared to fix a low plucking minimum in the obligatory subjects. But the general effect of this would be to lower the standard of attainment all round, since the maximum number of large subjects which can be adequately taught is five, even if that is not too many; and a mere pass on such a minimum as Dr. Percival proposes would be of little educational value. Nor would it be of much professional value for the purpose of the subsequent Woolwich instruction; *e.g.*, how would the study of electricity be rendered more easy in the Academy if candidates could pass in the entrance examination with such an amount of knowledge as would be represented by 25 per cent. of the maximum?

(B.)—*Physical Competition.*—I understand Dr. Percival to propose that, assuming the last candidates who would be successful if the competition were confined to the literary subjects to obtain 6,000 marks, all candidates obtaining between 7,000 and 5,000 should be marked for their physical qualifications (determined by competition) on a scale with 1,000 as a maximum.

In my opinion, if physical qualifications be included in the competition—which I myself think undesirable—such a principle of marking would be most invidious. On the principle of open competition, *all* the candidates who would have a chance of succeeding if physical qualifications were assigned 1,000 marks ought to be examined; otherwise the place of each candidate on the list, which is an element in the competition, would

not be properly determined. The places of the candidates at the head of the list, as well as of those at the bottom, would be altered by the introduction of a fresh standard of measurement.

5. Mr. Welldon.—Proposes a list of obligatory subjects longer than that prescribed in the existing scheme.

All that I have said with regard to this particular point in criticising Dr. Percival's scheme applies to Mr. Welldon's.

As to what Mr. Welldon says about the marking for colloquial French and German, the principle of giving a high proportion of the maximum to this part of the examination has already been put to the test, and with very bad results.

B.—The existing scheme endeavours to secure the objects hitherto regarded by the War Office authorities as of paramount importance.

If it is considered desirable that as many candidates as possible should come to the examination straight from the schools where they have been educated, it seems to follow that the public school education must be regarded as the standard of "the well-grounded liberal education of an English gentleman," and that the scheme of examination must be adapted as closely as possible to the public school curriculum.

Hence Class I. in the present scheme takes as the groundwork of this liberal education the subjects universally taught in all the public schools, viz., mathematics, Latin, one modern language (viz., French or German), and English composition. The only point at which this classification seems to infringe the principle specified above is the inclusion in Class I. of geometrical drawing, but as this subject, which is almost indispensable in the subsequent studies of the selected candidates, can easily be combined with the study of mathematics, little inconvenience is occasioned by this requirement.

All the public schools make provision for instruction in other subjects besides those included in Class I., and Class II. is intended to give scope to the various tastes and accomplishments of all candidates who are likely to present themselves for examination. The only subject which might be thought to deserve a place in the class, but is omitted, is English literature; but as this subject is not usually included in the ordinary school curriculum, and is nowhere taught upon any recognized systematic method, it becomes essentially a "cram" subject, and as such has been excluded from the scheme.

Objections have been made to the inclusion of Latin in Class I., but they do not seem to rest on any very valid ground; for not only is Latin taught in all the public schools, but it provides an instrument for the training of the logical faculty as well adapted to one class of intellect as mathematics is to another, and in this respect there can be no comparison between it and any modern language; moreover, it is of great use in giving scholars a knowledge of their own language by showing them the derivation of a geat number of common words. In these respects it seems to be an essential part of "the well-grounded education of an English gentleman."

In English composition it has been suggested that some paper of the nature of a digest might be added, and I think myself this might be done with advantage.

Descriptive geometry might, if it were thought desirable, be included in geometrical drawing.

As to Class II. there seems to be some doubt whether the scheme is likely in future to furnish Woolwich with a sufficient supply of recruits highly trained in mathematics and physical science. I think these objects might be secured by dividing higher mathematics into two parts, assigning to each 2,000 marks, and allowing candidates to take both parts. As to science, I have already suggested in my evidence that physics might with advantage be split into two parts, of which either might be chosen.

Finally, I would point out that no serious objection to the present scheme has been disclosed by the evidence; that it suits the schools; that increasing numbers are recruited under it direct from the schools; and that the general standard of attainment is actually rising.

W. J. COURTHOPE.

6th December, 1893.

APPENDIX XXX.

SANDHURST.—Five Examinations, from June, 1891, to June, 1893

SHOWING the ratio of success attending the candidates who selected different subjects in Class II.; and also the average mark obtained in each subject:—

	No. successful.	Total No. taking subject.	Ratio of success.	Average mark of all candidates.
Above the mean—			per cent.	per cent. of maximum.
Higher Mathematics	119	327	36·4	26·5
Greek	139	447	31·1	33·2
French	61	241	25	45·6
Mean—				
German	345	1,674	20·6	38·3
Below the mean—				
Chemistry	118	588	20·1	27·7
English History	335	1,844	18·2	32·2
Physics	23	130	17·7	40·1
Physical Geography and Geology ..	66	460	14·3	35·4

Of the whole 2,913 candidates examined, 603 were successful, or 20·7 per cent. of the total number. In the foregoing table a higher ratio of success than the average attended the candidates taking higher mathematics, Greek, and French; a lower ratio of success attended those taking chemistry, English history, physics, and physical geography, and geology, the proportions becoming lower in the order named.

It is worth observing that the two subjects at the top of the list in this respect, are among the lowest in the general average of marks awarded to them, higher mathematics which heads the one list being, in fact, at the bottom of the other.

APPENDIX XXXI.

SANDHURST, June, 1891 to 1893, inclusive.

		Total.			Successful.			Unsuccessful.			Excess of A over B.
		No. of candidates.	Average mark.	Average mark per cent. of maximum.	No. of candidates.	Average mark.	(A.) Average mark per cent. of maximum.	No. of candidates.	Average mark.	(B.) Average mark per cent. of maximum.	
Class I.	Mathematics	2,913	1,080	43·2	603	1,560	62·4	2,310	950	38·0	24·4
	Latin	2,877	764	38·2	600	1,136	56·8	2,277	662	33·1	23·7
	French	2,446	902	45·1	539	1,124	56·2	1,907	844	42·2	14·0
	German	260	1,084	54·2	64	1,276	63·8	196	1,000	50 0	13·8
Class II.	Higher Mathematics	327	530	26·5	119	820	41·0	208	366	18·3	22·7
	French ii.	241	912	45·6	61	1,128	56·4	180	826	41·3	15·1
	German ii.	1,674	766	38·3	345	1,086	54·3	1,329	680	34·0	20·3
	Greek	447	664	33·2	139	1,000	50·0	308	512	25·6	24·4
	English History..	1,844	644	32·2	335	902	45·1	1,509	582	29·1	16·0
	Chemistry	588	554	27·7	118	890	44·5	470	464	23·2	21·3
	Physics	130	802	40·1	23	1,180	59·0	107	728	36·4	22·6
	Geography and Geology	460	708	35·4	66	1,246	62·3	394	616	30·8	31·5
Class III.	English Composition	2,904	241	48·2	603	266	53·2	2,301	234	46·8	6·4
	Freehand Drawing	2,868	213	42·6	601	256	51·2	2,267	210	40·2	11·0
	Geometrical „	2,902	509	50·9	603	643	64·3	2,299	473	47·3	17·0

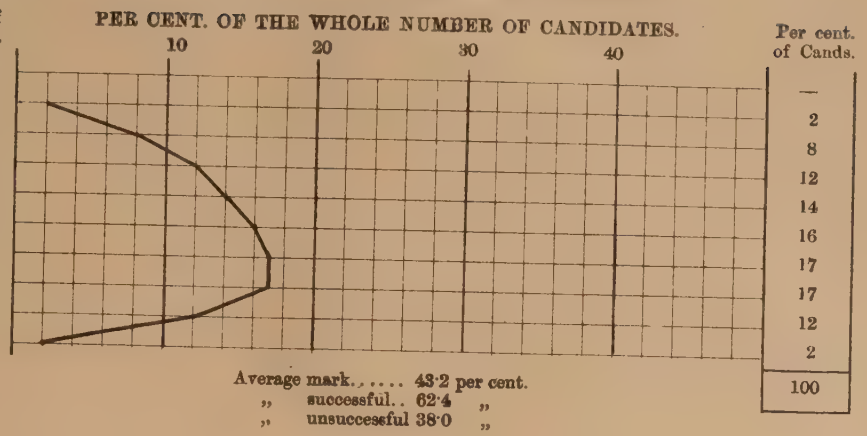
SANDHURST. **June, 1891, to June, 1893, inclusive.**

Part I.

Max. 2500.

Mathematics, Class I.

Min. *Highest Candidate*



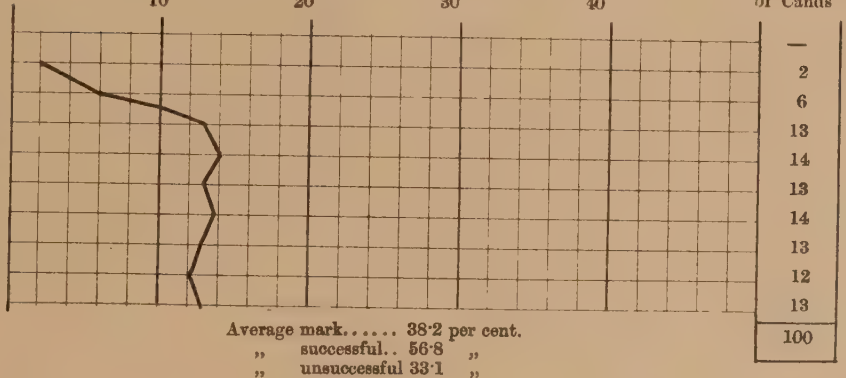
	No. of Cands.	Per cent. of Cands.
I. over 90 %	10	—
II. „ 80 „	67	2
III. „ 70 „	246	8
IV. „ 60 „	384	12
V. „ 50 „	435	14
VI. „ 40 „	509	16
VII. „ 30 „	510	17
VIII. „ 20 „	512	17
IX. „ 10 „	357	12
X. „ 0 „	62	2
		100

Average mark..... 43·2 per cent.
„ successful.. 62·4 „
„ unsuccessful 38·0 „

Max. 2000.

Latin.

Min. *Highest Candidate*



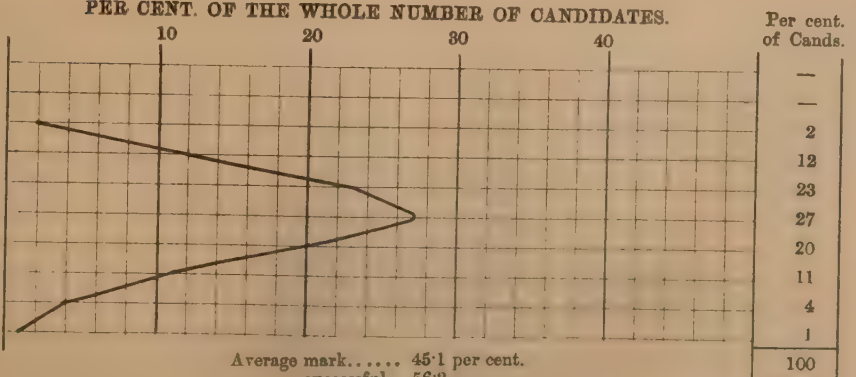
	No. of Cands.	Per cent. of Cands
I. over 90 %	2	—
II. „ 80 „	77	2
III. „ 70 „	171	6
IV. „ 60 „	394	13
V. „ 50 „	442	14
VI. „ 40 „	405	13
VII. „ 30 „	422	14
VIII. „ 20 „	383	13
IX. „ 10 „	358	12
X. „ 0 „	397	13
		100

Average mark..... 38·2 per cent.
„ successful.. 56·8 „
„ unsuccessful 33·1 „

Max. 2000.

French.

Min. *Highest Candidate*



	No. of Cands.	Per cent. of Cands.
I. over 90 %	0	—
II. „ 80 „	12	—
III. „ 70 „	77	2
IV. „ 60 „	356	12
V. „ 50 „	692	23
VI. „ 40 „	842	27
VII. „ 30 „	622	20
VIII. „ 20 „	338	11
IX. „ 10 „	110	4
X. „ 0 „	16	1
		100

Average mark..... 45·1 per cent.
„ successful.. 56·2 „
„ unsuccessful 42·1 „

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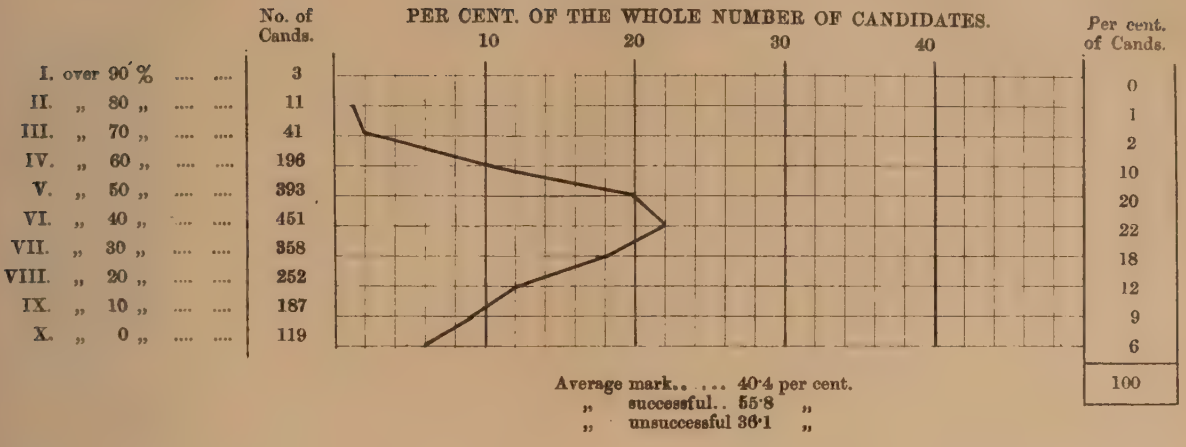
SANDHURST. **June, 1891, to June, 1893, inclusive.**

Part I. *continued.*

Max. 2000.

German.

Min. *Highest Candidate*

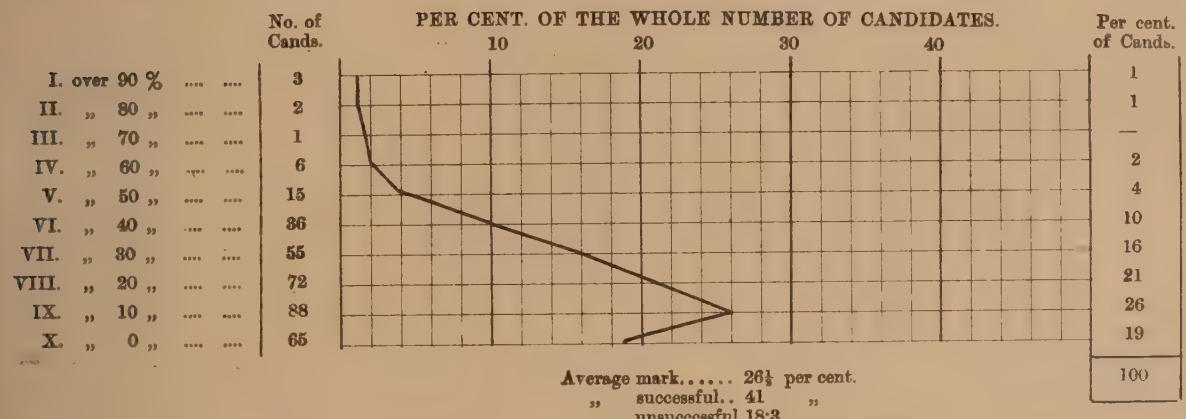

No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 3 0
II. „ 80 „ 11 1
III. „ 70 „ 41 2
IV. „ 60 „ 196 10
V. „ 50 „ 393 20
VI. „ 40 „ 451 22
VII. „ 30 „ 358 18
VIII. „ 20 „ 252 12
IX. „ 10 „ 187 9
X. „ 0 „ 119 6
100

Average mark.. .... 40·4 per cent.
„ successful.. 55·8 „
„ unsuccessful 36·1 „

Max. 2000.

Higher Mathematics.

Min. *Highest Candidate*

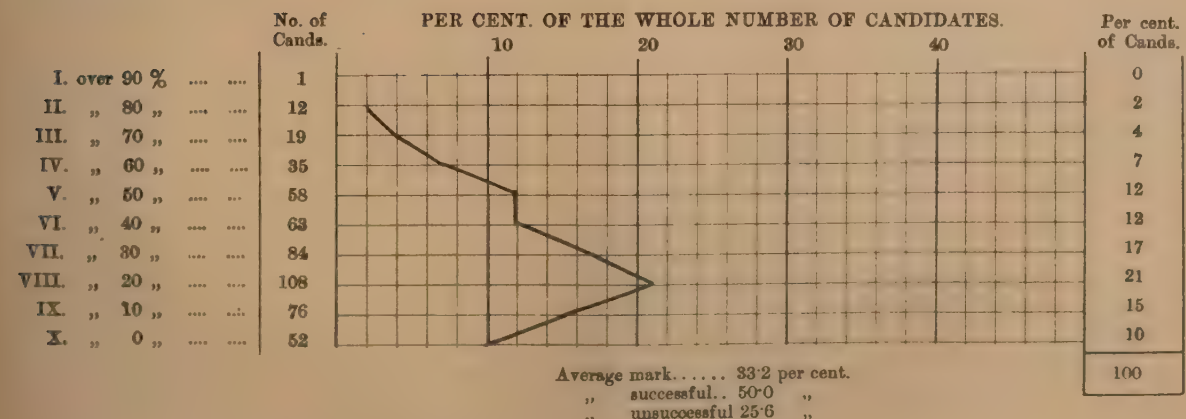

No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 3 1
II. „ 80 „ 2 1
III. „ 70 „ .... 1 —
IV. „ 60 „ 6 2
V. „ 50 „ 15 4
VI. „ 40 „ 36 10
VII. „ 30 „ 55 16
VIII. „ 20 „ 72 21
IX. „ 10 „ 88 26
X. „ 0 „ 65 19
100

Average mark..... 26½ per cent.
„ successful.. 41 „
„ unsuccessful 18·3 „

Max. 2000.

Greek.

Min. *Highest Candidate*


No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 1 0
II. „ 80 „ 12 2
III. „ 70 „ 19 4
IV. „ 60 „ 35 7
V. „ 50 „ 58 12
VI. „ 40 „ 63 12
VII. „ 30 „ 84 17
VIII. „ 20 „ 108 21
IX. „ 10 „ 76 15
X. „ 0 „ 52 10
100

Average mark..... 33·2 per cent.
„ successful.. 50·0 „
„ unsuccessful 25·6 „

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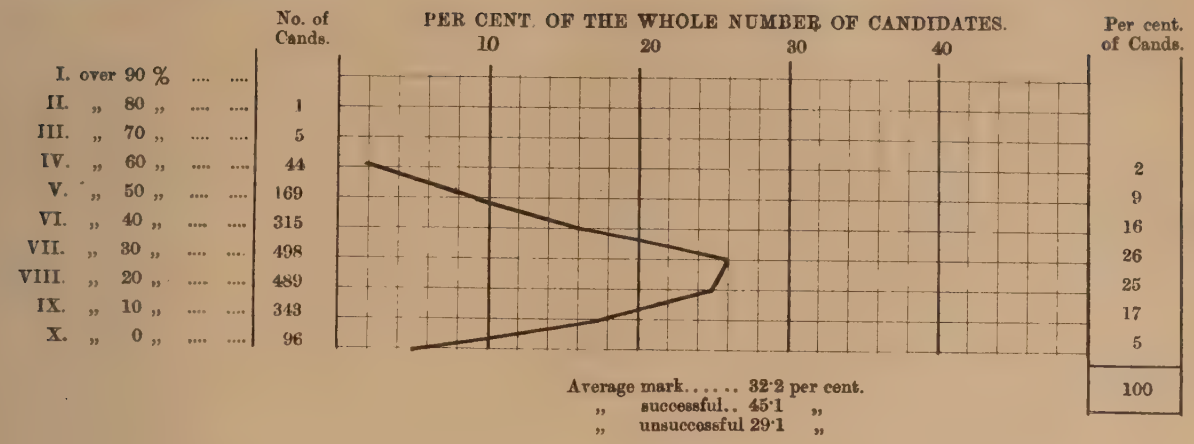
Part II.

Max. 2000.

English History.

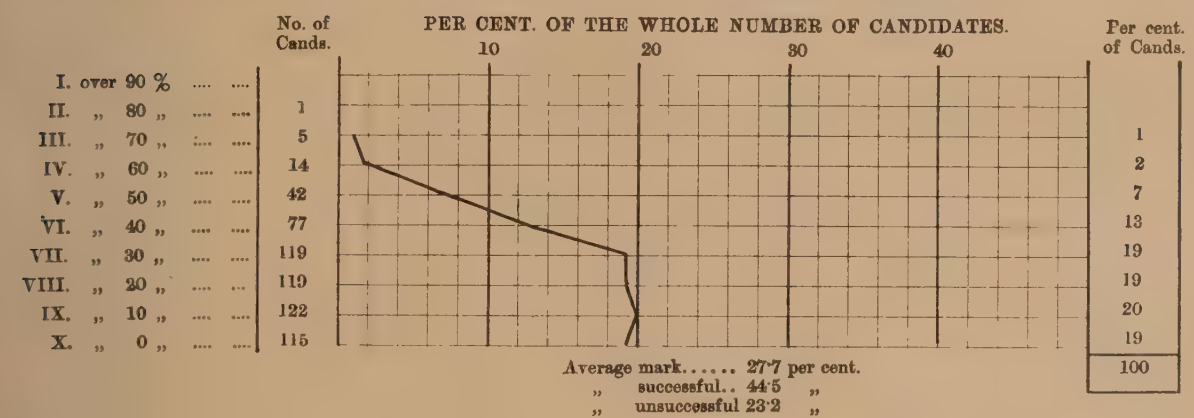

No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 0 0
II. „ 80 „ 1 2
III. „ 70 „ 5 9
IV. „ 60 „ 44 16
V. „ 50 „ 169 26
VI. „ 40 „ 315 25
VII. „ 30 „ 498 17
VIII. „ 20 „ 489 5
IX. „ 10 „ 343 100
X. „ 0 „ 96

Average mark..... 32·2 per cent.
„ successful.. 45·1 „
„ unsuccessful 29·1 „

Max. 2000.

Chemistry.

Min. *Highest Candidate*

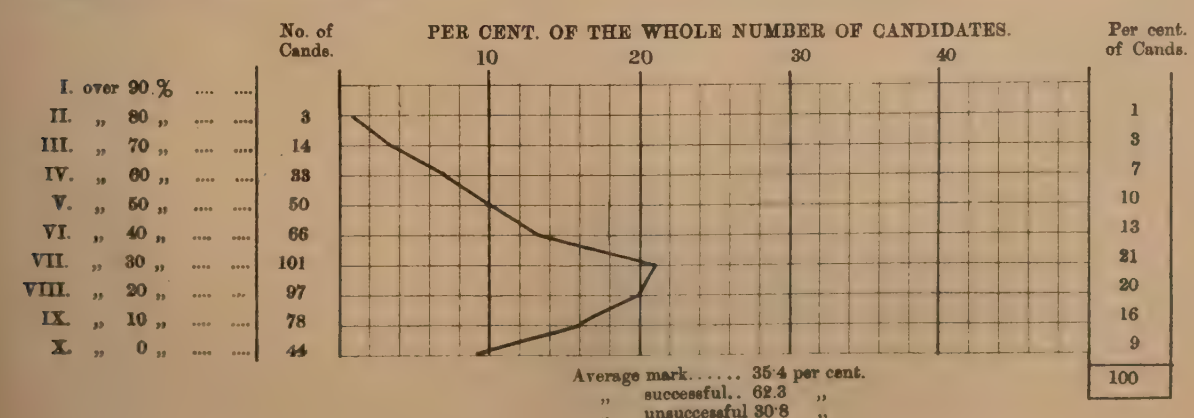

No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 0 0
II. „ 80 „ 1 1
III. „ 70 „ 5 2
IV. „ 60 „ 14 7
V. „ 50 „ 42 13
VI. „ 40 „ 77 19
VII. „ 30 „ 119 19
VIII. „ 20 „ 119 20
IX. „ 10 „ 122 19
X. „ 0 „ 115 100

Average mark..... 27·7 per cent.
„ successful.. 44·5 „
„ unsuccessful 23·2 „

Max. 2000.

Geography and Geology.

Min. *Highest Candidate*


No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 0 0
II. „ 80 „ 3 1
III. „ 70 „ 14 3
IV. „ 60 „ 33 7
V. „ 50 „ 50 10
VI. „ 40 „ 66 13
VII. „ 30 „ 101 21
VIII. „ 20 „ 97 20
IX. „ 10 „ 78 16
X. „ 0 „ 44 9
100

Average mark..... 35·4 per cent.
„ successful.. 62.3 „
„ unsuccessful 30·8 „

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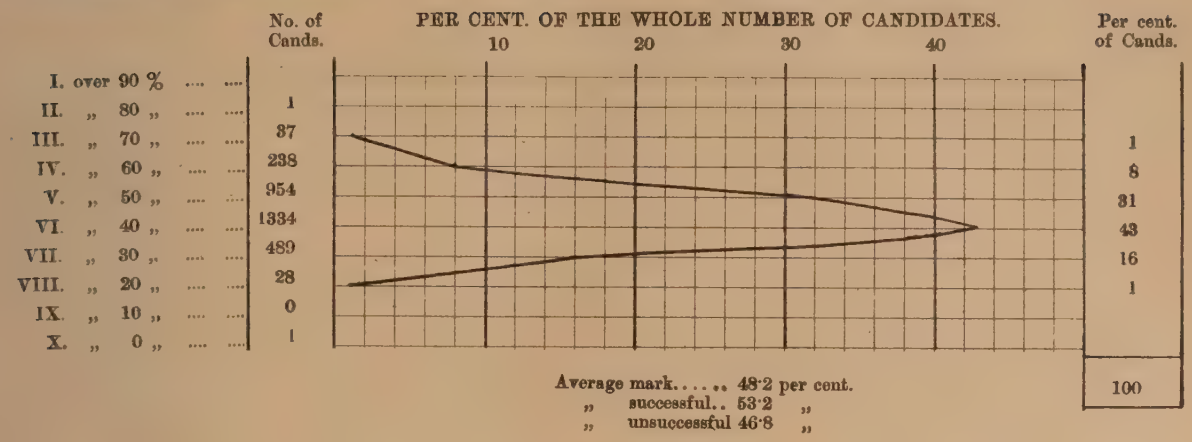
SANDHURST. **June, 1891, to June, 1893, inclusive.**

Part II. *continued.*

Max. 500.

English Composition.

Min. *Highest Candidate*

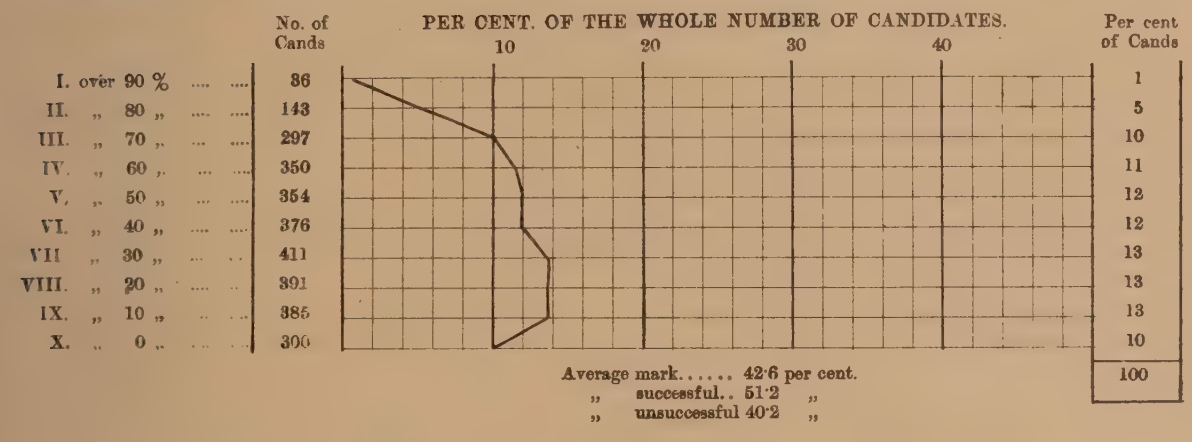

No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 1 1
II. „ 80 „ 37 8
III. „ 70 „ 238 31
IV. „ 60 „ 954 43
V. „ 50 „ 1334 16
VI. „ 40 „ 489 1
VII. „ 30 „ 28
VIII. „ 20 „ 0
IX. „ 10 „ 1
X. „ 0 „ ....
100

Average mark..... 48·2 per cent.
„ successful.. 53·2 „
„ unsuccessful 46·8 „

Max. 500.

Freehand Drawing.

Min. *Highest Candidate*

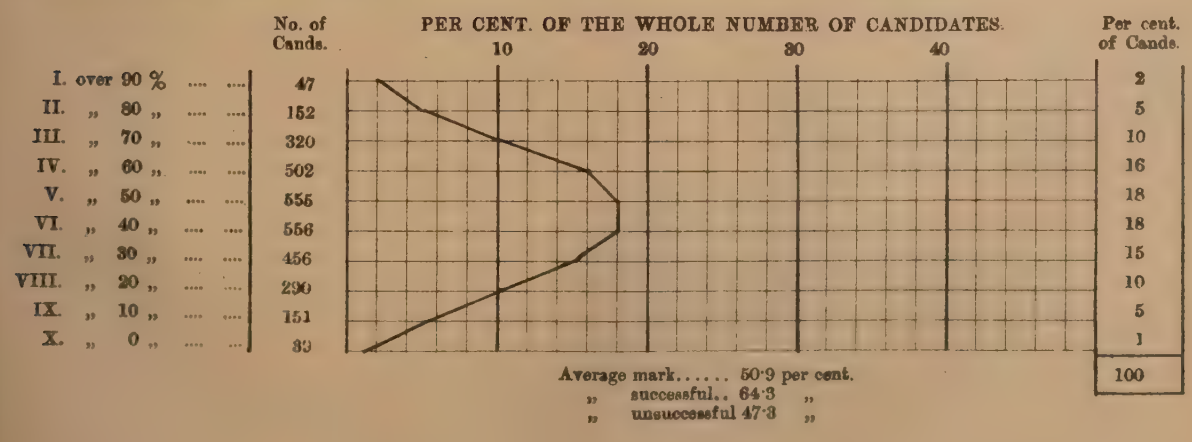

No. of Cands
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent of Cands
I. over 90 % 86 1
II. „ 80 „ 143 5
III. „ 70 „ 297 10
IV. „ 60 „ 350 11
V. „ 50 „ 354 12
VI. „ 40 „ 376 12
VII „ 30 „ 411 13
VIII. „ 20 „ 391 13
IX. „ 10 „ 385 13
X. „ 0 „ 300 10
100

Average mark..... 42·6 per cent.
„ successful.. 51·2 „
„ unsuccessful 40·2 „

Max. 1000.

Geometrical Drawing.

Min. *Highest Candidate*


No. of Cands.
PER CENT. OF THE WHOLE NUMBER OF CANDIDATES.
10
20
30
40
Per cent. of Cands.
I. over 90 % 47 2
II. „ 80 „ 152 5
III. „ 70 „ 320 10
IV. „ 60 „ 502 16
V. „ 50 „ 555 18
VI. „ 40 „ 556 18
VII. „ 30 „ 456 15
VIII. „ 20 „ 290 10
IX. „ 10 „ 151 5
X. „ 0 „ 33 1
100

Average mark..... 50·9 per cent.
„ successful.. 64·3 „
„ unsuccessful 47·3 „

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APPENDIX XXXII.

Memorandum regarding the Method of conducting the Examination in Practical Physics at the Army Entrance Examinations.

The method of examination in practical physics in force at the recent Army Entrance Examinations was as follows :—

All candidates who desired to present themselves for examination in practical physics received a communication from the Civil Service Commission asking for information as regards the work already done in this subject by the candidate. On the information from all the candidates, the paper was set so as to give every candidate as fair a chance as possible.

The paper was divided into two parts, A. and B.; A. comprising heat, light and sound, and B., electricity and magnetism. One hour and a half was allowed for each part. The examination was held in the large halls at Burlington House.

Some of the candidates were working at A. in one room, while others were engaged at B. in another room. The number of candidates in each room was between 10 and 15. The number of questions was three or four in each part. The candidates were directed to "select one question only. Write short notes explaining how you propose to deduce the final results in the case before you. These notes should be written on the left hand pages of the answer book, the right hand page being reserved for recording the actual measurements, &c."

The candidates having selected a question and written his notes on it, the examiner present reads them and takes the candidate to a table where the apparatus required for the experiment is set ready for him. The examiner then leaves the candidate to carry out the experiment.

But it very often happens that the candidate may have to wait some 5 or 10 minutes before the examiner is free to read his notes, and then, again, owing to a scarcity of apparatus, the candidate may have to wait as long as half an hour before he is allowed to use the apparatus; and should there be a demand for the instrument, the examiner returns to the candidate every few minutes, asking him if he has finished, and, if he sees the candidate is not acquainted with the particular form of apparatus provided, he only allows the candidate 5 or 10 minutes, whereas the candidate previously trying to use the apparatus may have been allowed to detain it for half an hour.

Another disadvantage of this method is that should the candidate have selected a question in sound, it is next to impossible to obtain accurate results on account of the noise which must necessarily occur if other candidates are working close to him.

The following method of carrying out the examination is proposed in order that the element of chance present to such an extent in the method already described, may be reduced to a minimum.

Let every candidate, as heretofore, give information as regards the practical work done by him, and, on the information received, let a sufficient quantity of apparatus be arranged in the Civil Service Commission Examination Rooms, at King Street, and, according to the apparatus in each room, let the candidates be distributed, as far as possible, to particular collections of apparatus. Let there be one examiner in each room, and let the candidates pass through the room designated to them, singly. Allow the examiner to examine the candidate orally as well as practically, and to allot him marks on the proficiency he shows in the subject, as is done in the oral examinations in modern languages. The oral examination proposed would take the place of the written "short notes" in the present method.

The numerical readings, &c., would still have to be recorded and shown to the examiner.

The time allowed to each candidate in practical physics would necessarily have to be considerably longer than that allowed in the examinations in French or German, whereas probably not more than 20 per cent. would be examined in practical physics.

ED. HARVEY.

13*th January*, 1894.

APPENDIX XXXIII.

ADDITIONAL Tables showing results of Measurements of the last 4,912 Candidates for Army Commissions, corresponding to Tables II. and III. in Appendix XVIII., and referring to Questions 1780 and 1781.

TABLE II.

TABLE showing the average Heights, the maxima and minima of these, the range of maxima and minima, and the average Annual Growth of 4,912 Candidates between the ages of 17 and 23 years, passed physically fit for Commissions in Her Majesty's Army.

Age.	Height, in inches.				
	Maximum.	Average.*	Minimum.	Range.	Average annual growth.
years.					
17	82·50	68·40	62·00	20·50	..
18	78·00	68·52	62·25	15·75	·12
19	78·75	68·75	61·25	17·50	·23
20	77·70	69·40	63·25	14·45	·65
21	77·50	69·15	63·30	14·20	..
22	76·25	69·01	63·00	13·25	..
23	76·75	68·26	63·75	13·00	..

* Decimal parts of an inch are not included in calculating the averages.

ARMY MEDICAL DEPARTMENT,
3rd February, 1894.

TABLE III.

TABLE showing the average empty Chest Measurements, the maxima and minima of these, the range of maxima and minima, and the average Annual Growth of 4,912 Candidates, between the ages of 17 and 23 years, passed physically fit for Commissions in Her Majesty's Army.

Age.	Empty chest girth, in inches.					Remarks.
	Maximum.	Average.*	Minimum.	Range.	Average annual growth.	
years.						
17	40·50	32·96	28·50	12·00	..	
18	39·50	33·32	29·12	10·38	·36	
19	41·00	33·67	30·00	11·00	·35	
20	39·00	34·02	30·00	9·00	·35	
21	39·00	34·26	30·00	9·00	·24	
22	40·00	34·63	30·50	9·50	·37	
23	39·00	34·15	31·50	7·50	..	

* Decimal parts of an inch are not included in calculating the averages.

ARMY MEDICAL DEPARTMENT,
3rd February, 1894.

APPENDIX XXXIV.

INFORMATION showing the methods by which the Commissioned Ranks of the Austrian, French and German Armies are Recruited.

A.

AUSTRIA.

Questions.	*Answers.*
1. A concise report showing how the commissioned ranks are recruited in the army of Austria.	*See* Report enclosed.
2. Categorical replies to the following questions in each case:—	
(*a.*) Is there a competitive examination for entrance to the commissioned ranks of the army in non-military subjects, *i.e.*, general education?	No.
(*b.*) If so, what are the subjects of examination?	None.
(*c.*) Is there at any time a physical competitive examination?	No.

DOUGLAS DAWSON, *Lieut.-Colonel,*
Military Attaché.

VIENNA,
24*th January*, 1894.

REPORT on how the Commissioned Ranks are Recruited in Austria-Hungary.

The system of instruction for boys destined for Officers is an excellent one, and as thorough as possible. Education may be said to progress with one object in view from the earliest boyhood, and it can as a system be divided into three classes as far as assistance by the War Office to sons of Officers is concerned.

Class I.

The boy begins his education usually at a "normal" school at a very early age. Thence the successful career of a candidate for a commission is as follows:—

He leaves the "normal schule" about 10 years old, and enters the "unter real (technical) schule"; at 15 he goes to the Ober real schule, and at 18 he passes into one of the two military academies, whence after three years he issues an officer.

The "unter real schulen" are four in number, *i.e.*:—

St. Polten,	with	200	scholars	Course four years.
Güns	„	200	„	
Eisenstadt	„	260	„	
Kaschan	„	200	„	

There is also a State subventioned course for orphan sons of officers at a school at Fischau, 140 scholars.

The successful scholar passes from one of these schools to the "Ober real schule" or college at Weisskirchen, where there are 450 scholars, and the course is three years.

During the seven years of "unter" and "Ober real schule" instruction, although he has never been subjected to a competitive examination, the boy has to fulfil many conditions, and show signs of ability generally, mental and physical, to hold his place. Those who do not come up to the standard required are sent away or lose places during the "unter real schule" course. It is, in fact, throughout a system of rejection and *not* selection. This "weeding out" enables all who satisfy the conditions being accommodated at the Ober real schule at Weisskirchen.

The schools of Class I. are preparatory to—

Class II.

The Military Academy of Wiener Neustadt, for Infantry and Cavalry, 450 scholars; and the Technical Academy of Vienna, for Artillery, Engineers, and Technical Corps, 270 scholars, three years' course.

Or for those who fail to satisfy conditions fitting them for Class II.—

Class III.

12 Infantry cadet schools, 2,435 scholars; 1 Cavalry cadet school, 130 scholars; 1 Artillery cadet schools, 345 scholars; 1 Pioneer cadet school, 170 scholars.

The Infantry cadet school course is four years, the remainder three years.

Graduates of the Military Academy, Wiener Neustadt, enter the army as 2nd Lieutenants of Cavalry and Infantry, and graduates of the Military Technical Academy of Vienna enter the army as 2nd Lieutenants of Artillery, Engineers and Technical troops. They are appointed on the 18th August (Emperor's birthday) in each year, and require no other criticism on their military capability except what has been already stated by their professors. They receive uniform outfit free on joining. Graduates of cadet schools are appointed cadets when they leave the cadet school. As vacancies occur they become "cadet officers stellvertreters," and during their service as such are subjected to a strict supervision by the officers' corps who pronounce whether or no they fulfil the conditions for commissioned officers laid down by regulations. If satisfactory, they are promoted to officers as vacancies occur, a period of cadet service now much shorter than formerly.

In order to make as clear as possible a rather complicated system, I have given the case of an officer's son, whose father elects to take advantage of education provided by the War Office. But far the larger proportion of officers elect to educate their sons, like civilians educate their sons, *i.e.*, at one of the many State supported schools, independent of the War Office. These are of two kinds, Real Schulen and Gymnasiums. At the former education is modern, chiefly in mathematics and modern languages, at the latter the education is classical. But these schools have their place in the boy's career corresponding only to Class I., before mentioned (*i.e.*, to the unter and oberreal schulen), and every graduate of these schools must, before he can qualify for the army, except in the case next mentioned, go through either Class II. or III.

There is a third source whence officers are obtained, which is by *activirte officiere.*

The one-year volunteer, after one year's service, is appointed Lieutenant in the reserve. He can apply to be made an active Lieutenant, and then, after six months' reserve service satisfactorily done, he is appointed *lieutenant rang seinerzeit*, which means that he will rank after all those who were in the academies when he commenced service have been gazetted Lieutenants. Many officers now serving entered this way, and it is popular. The opinion is that better educated officers are thus provided than are produced by cadet schools, and naturally, so far, the one-year volunteer has a higher class of examination to pass than those who pass through cadet schools.

It will be seen that there is an entire absence of competitive examinations. But the standard attained in examination decides the career. There are examinations every July at all the schools, those who fail badly are put back one year, those who only just fail are re-examined in September. The great object is to attain the *matura* certificate. This admits to both academies, or rather, gives the right to apply for admission, for the War Office reserves the right of appointing *matura* certificate holders in the order they choose. Preference is given to officers' sons first, and then to sons of *Beamten* (officials).

To enter a cadet school it is only necessary to have passed a real schule or Gymnasium.

Physical education, such as riding, gymastics, fencing, &c., is paid great attention to during the time passed in Class II. or III.

The Budget for 1894 provides for horses for the several establishments as follows:—Wiener Neustadt, 95 horses; Technical Academy, 53 horses; and cadet schools, 201 horses.

DOUGLAS DAWSON, *Lieut.-Colonel,*
Military Attaché.

VIENNA,
24th January, 1894.

B.

FRANCE.

Paris,
28th January, 1894.

My Lord,

I have the honour to send in a short report, which I have been instructed to make upon the system by which the commissioned ranks in the French Army are recruited, and I have to request that it may be forwarded to the proper quarter.

I also send the *Bulletin Officiel, partie supplementaire* No. 40, 1893, giving the instructions for the examinations to be held in 1894 of candidates for the Infantry and Cavalry.

(Signed) R. TALBOT, *Colonel,*
Military Attaché.

His Excellency,
The Marquis of Dufferin and Ava, K.P., &c., &c.

The commissioned ranks of the French Army are recruited as follows:—

1. By competition, but limited to those who have obtained certain degrees or passed certain standards of education in the civil schools or universities (details of which are given later).

The limits of age are from 17 to 21 years. The successful candidates spend two years at the military school of the arm which they intend to enter, and after passing a final examination are appointed Sub-Lieutenants in the order of merit.

2. Through the non-commissioned ranks sub-officers, after two years' service, who are recommended by their commanding officers, are permitted to go up for an examination, and, if successful, they spend one year at a military school,* and on passing the final examination are appointed Sub-Lieutenants in the order of merit.

The course of studies is less advanced than at St. Cyr, and is more technical.

Sub-officers, who are candidates for commissions, are in the great majority of cases those who have failed in the open competition for direct commissions.

Categorical answers to questions submitted:—

(*a.*) Is there a competitive examination for entrance to the commissioned ranks of the army in non-military subjects?—Yes.

(*b.*) If so, what are the subjects of examination?—French composition, history (not confined to military history), geography, German, English (voluntary), algebra, geometry and descriptive geometry, trigonometry, mechanical science, physical science, cosmography, topography and drawing.

(*c.*) Is there at any time a physical competition?—Yes, in physical fitness, and a competitive examination in equitation, fencing, and gymnastics, all three of which are obligatory, but the marks in proportion to other subjects are few.

For candidates for Commissions in the Infantry, Infantry of Marine and Cavalry there is an annual competition for entrance to the school at St. Cyr, but candidates are limited to those who have obtained degrees as *bachelier es lettres, bachelier es science, bachelier d'enseignement secondaire spécial,* or who have a certificate of qualification for the bachelorships in secondary classical or secondary modern schools.

This competition is divided into four stages—

1. *Compositions in French, German, Mathematics, Geometry, Drawing.*

This stage of examination lasts four days, and is conducted in the month of June, in 26 of the principal towns in France and Algeria. Candidates not obtaining a minimum of marks, fixed annually by the Minister for War, have to withdraw from further competition.

2. *Examination of First Degree.*

An oral examination in compulsory subjects as in the preliminary stages above, excepting German. The examination takes place in July, in 10 of the principal towns in France. Candidates not obtaining a qualifying number of marks in this stage have to withdraw from further examination.

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* These schools are not the same as those for candidates for direct commissions. The school for Infantry is at St. Maixent; Cavalry, at Saumur; Artillery, Engineers and Train, at Versailles.

3. *Examination of Second Degree.*

French composition, history, geography, German, English (voluntary), algebra, geometry, topography, &c., physical and mechanical science. The marks obtained in this stage are added to those obtained in the first stage, but not to those in the second, which is merely an easier trial in the subjects tested in the third stage. This examination takes place a few days after that of the second stage.

4. *Physical aptitude.*

Candidates are examined as to physical fitness and competitively in horsemanship, fencing and gymnastics, which are all three obligatory, and for which marks are given.

The minimum height is 1·540 metres = 5·05 feet. Age from 17 to 21 years; temporarily, those already serving in the Army are able to compete up to 25 years.

Table of co-effectives.

	Number.	Number.	Remarks.
1st stage..	..	53	
2nd „	30	..	Qualifying, not included in total.
3rd „	..	114	
4th „	..	18	Physical aptitude.
Total	..	175	

The school at St. Cyr is under military organization; the cadets being formed into eight companies, making one battalion. The cost charged to cadets is 1,000 francs (40*l.*) per annum for board and expenses, and the charge for outfit 600 to 700 francs (24*l.* to 28*l.*) But cadets whose parents are without means are received without payment, and are given a free outfit. Where the parents are poor, but not altogether without means, cadets are charged half price, both for board and outfit.

The course of instruction lasts two years, and the final examination determines the order of seniority in which commissions are given.

There will be 475 vacancies at the school at St. Cyr this year, for which about 2,200 candidates will compete.

The *Bulletin officiel, partie supplementaire*, No. 40, of December, 1893, sent herewith, gives the instructions and details for the examination to be held in 1894.

Commissions in the Artillery and Engineers are obtained through the Ecole Polytechnique. There is an open competition to enter the school and a competitive examination at the end of two years, which gives the order of merit, and in that order cadets select the branch of the service in which they are to serve.

R. TALBOT, *Colonel.*

EXTRACTS from Instructions for Examinations in 1894, for Admission to St. Cyr.

No. 249. *Instruction pour l'admission à l'Ecole spéciale militaire en* 1894.

Paris,
le 19 décembre 1893.

INSTITUTION DE L'ECOLE.

L'Ecole spéciale militaire, établie à Saint-Cyr, est destinée à former des officiers pour—

L'infanterie,
La cavalerie,
L'infanterie de marine.

La durée du cours d'instruction est deux ans.

L'Ecole spéciale militaire est soumise au régime militaire.

Le prix de la pension est de 1,000 francs et celui du trousseau de 600 à 700 francs.

Des bourses ou des demi-bourses peuvent être accordées aux jeunes gens qui ont préalablement fait constater, dans les conditions fixées par la loi du 5 juin 1850, l'insuffisance des ressources de leur famille pour leur entretien à l'Ecole.

De plus, il peut être alloué à chaque boursier ou demi-boursier un trousseau ou un demi-trousseau.

Conditions d'Admission au Concours.

Nul n'est admis à l'Ecole que par la voie du concours.
Le concours est divisé en trois épreuves successives :—

1. Les compositions ;
2. L'examen du premier degré ;
3. L'examen du second degré.

Nul ne peut être admis aux compositions s'il ne justifie de la possession de l'un des diplômes de bachelier ès lettres, bachelier ès sciences, bachelier de l'enseignement secondaire spécial, certificat d'aptitude à la première partie du baccalauréat de l'enseignement secondaire classique ou de l'enseignement secondaire moderne.

Un avantage de 40 points sera accordé aux candidats pourvus du baccalauréat ès lettres complet accompagné du baccalauréat ès sciences ou du baccalauréat de l'enseignement secondaire spécial.

30 points seront accordés aux candidats possédant le baccalauréat ès lettres complet.

Un avantage de 20 points sera compté aux candidats pourvus du certificat d'aptitude à la 1re partie du baccalauréat ès lettres ou du certificat d'aptitude à la 1re partie (lettres) du baccalauréat de l'enseignement secondaire classique, accompagné d'un des deux diplômes de bachelier ès sciences ou du bachelier de l'enseignement spécial.

Enseignement secondaire classique.—Un avantage de 15 points sera accordé aux candidats pourvus de la première partie (lettres) ; 30 points seront accordés aux candidats présentant le diplôme de bachelier (lettres, philosophie).

Enseignement secondaire moderne.—Un avantage de 15 points sera accordé aux candidats pourvus du diplôme de bachelier (lettres, philosophie).

Il sera tenu compte de ces avantages pour l'admission seulement.

Concours.

I.—Compositions.

Les compositions comprennent :—

1. Une composition francaise de la force de la classe de mathématiques élémentaires (narration, discours, lettre, rapport, dissertation)* ;

2. Un thème allemand.—Les caractères allemands seront employés pour l'écriture de ce thème ; le texte sera accompagné, s'il est nécessaire, de quelques indications pour les mots et les tournures qui sortiraient de la pratique usuelle.—Une version allemande autographiée.—Le thème et la version seront faits sans l'aide de lexique ou dictionnaire ;

3. Une composition mathématique comprenant des problèmes de force graduée, en commençant par le plus facile ;

4. Un calcul logarithmique ; résolution de triangle (on se servira exclusivement de tables à cinq décimales). Les candidats ne pourront se présenter qu'avec une table de logarithmes, tout autre secours leur étant formellement interdit ;

5. Le tracé d'une épure de géométrie descriptive d'après des données numériques simples, et dont le sujet sera pris dans la géométrie descriptive ou dans la géométrie cotée ;

6. Un dessin au crayon qui sera, selon la désignation qui en sera faite aux candidats par une insertion au *Journal officiel*, un mois avant le commencement des compositions, un buste, un torse, ou une académie à représenter d'après la bosse (Collection des modèles des lycées ou collèges) ;

7. La copie ombrée d'un paysage ;

8. Un dessin topographique consistant en une copie de carte au $\frac{1}{20000}$, à l'encre de Chine et à la plume, avec courbes, écritures et signes conventionnels, sans teintes. Le modèle sera quadrillé et les candidats auront à le reproduire également sur papier quadrillé, en augmentant ou en diminuant légèrement l'échelle. Ils ne peuvent se servir que de crayons, gomme, plumes, grattoir, encre de Chine, planche, à l'exclusion de tout autre instrument tel que compas, décimètre, règle, équerre, tire-ligne, rapporteur, etc.

Dans toutes les épreuves écrites, l'écriture doit être lisible et l'orthographe correcte. Toute composition qui ne remplira pas cette condition sera écartée et son auteur mis hors de concours.

Jugement des Compositions.

Les compositions sont soumises au jugement des examinateurs assistés de correcteurs nommés par le Ministre de la guerre.

La correction des compositions a lieu au ministère de la guerre.

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* La composition française sera appréciée surtout au point de vue de la composition et du style. Toutefois, le correcteur donnera à l'orthographe une note fictive, et tout candidat qui n'obtiendra pas 10 pour cette note sera exclu du concours.

Avant de remettre aux correcteurs les compositions et les dessins des candidats, les examinateurs détachent la partie de chacune des feuilles sur laquelle se trouvent le nom et la signature du candidat.

Les noms sont remplacés par des numéros d'ordre. Les parties enlevées restent sous scellé et ne sont rapprochées des compositions, au moyen des numéros d'ordre, qu'après que le Ministre a fixé le nombre de points minimum nécessaire pour être admis à l'examen du premier degré.

Les compositions sont cotées, par les correcteurs, d'un numéro de mérite compris dans l'échelle de 0 à 20.

Tout candidat convaincu de fraude sera exclu.

La cote donnée à une composition est multipliée par le coefficient correspondant à la nature de la composition, ce qui détermine le nombre de points attribués au candidat pour cette composition.

Le dessin d'imitation d'après la bosse reçoit une note; celui de paysage est également coté, et la moyenne de ces deux notes réunies donne la note définitive attribuée à la composition de dessin.

Les candidats, dont les notes de compositions multipliées par leurs coefficients respectifs forment une somme inférieure à une limite déterminée, sont éliminés avant l'examen du premier degré.

Cette limite est fixée tous les ans par le Ministre de la guerre, sur la proposition de la commission d'examen présidée par M. le général directeur de l'infanterie.

Afin de donner à la correction des compositions tout le temps nécessaire et de permettre également au jury du premier degré de commencer assez tôt ses opérations, la limite sera fixée, en 1894, dès que toutes les compositions des candidats qui doivent subir à Paris les examens oraux auront été corrigées.

La pùblication au *Journal officiel* des noms des candidats admis à l'examen du premier degré se fera donc en deux fois; la première liste comprendra les candidats ayant composé à Paris, Alger, Bastia, Lille, Rouen, Troyes et Versailles; la seconde comprendra tous les autres candidats des départements.

Le nombre minimum des points exigés sera évidemment le même pour les deux catégories.

Un extrait de la présente instruction, contenant tout ce que les candidats ont intérêt à connaître, est affiché à la porte de salles de compositions.

Cet extrait les prévient notamment que toute fraude dans l'une quelconque des épreuves entraîne l'exclusion du concours.

Examens du Premier Degré.

L'examen oral du premier degré décide de l'admissibilité, concurremment avec les compositions dont il est le complèment. Il porte sur l'ensemble des connaissances exigées, à l'exception toutefois de l'allemand sur lequel les candidats ne sont pas interrogés.

Il est subi devant un jury de trois examinateurs, dont un pour la partie littéraire et deux pour la partie scientifique.

Ce jury relève du président de la commission d'examen.

Chaque examinateur consacre, en général, vingt-cinq minutes à l'examen d'un candidat; il peut toutefois abréger cette durée, s'il se trouve suffisamment éclairé. Il attribue un numéro de mérite compris dans l'échelle de 0 à 20 aux réponses du candidat sur l'ensemble des interrogations qu'il lui a fait subir.

Les examinateurs du premier degré inscrivent, sur un bulletin portant le nom du candidat, les trois notes obtenues multipliées par leurs coefficients et font la somme des produits.

Ce total est additionné avec le total des points des compositions.

Les candidats dont la somme des points ainsi obtenue est inférieure à une limite, fixée comme il a été dit ci-dessus pour les compositions, sont éliminés et ne peuvent prendre part aux épreuves du second degré.

En 1894, cette limite sera fixée par le Ministre sur la proposition de la commision, dès que le jury du premier degré aura examiné 200 candidats environ.

Les candidats qui ont satisfait aux conditions imposées reçoivent un certificat d'admissibilité sur la présentation duquel ils sont admis à subir l'examen du second degré.

Examen du Second Degré.

L'examen du second degré est subi devant un jury composé de cinq examinateurs: trois pour la partie scientifique, un pour l'histoire et la géographie, un pour l'allemand et l'anglais.

Les candidats remettent au premier examinateur devant lequel ils se présentent, les diplômes et certificats qui donnent droit à des majorations de points et qui leur seront rendus à leur dernier examen oral.

Les dispositions générales relatives aux examens du premier degré sont applicables à l'examen du second degré.

Les questions addressées aux candidats sont tirées au sort. A cet effet, les examinateurs préparent chaque jour un nombre de bulletins égal à celui des candidats qu'ils doivent interroger dans la journée. Chaque bulletin porte des questions de force graduée.

Le candidat, à l'appel de son nom, tire un bulletin, en prend connaissance et le remet à l'examinateur.

L'examen roule sur les questions inscrites au bulletin; l'examinateur peut toutefois poser en outre les questions qu'il juge nécessaires pour s'éclairer sur l'étendue des connaissances du candidat.

Chaque examinateur attribue aux réponses des candidats, dans les diverses parties sur lesquelles il les a interrogés, une note comprise dans léchelle de 0 à 20; il multiplie ce numéro par le coefficient correspondant, et inscrit les produits partiels sur un bulletin portant le nom du candidat.

Pour établir le nombre total des points constatant le mérite d'un candidat dans les examens oraux, les examinateurs additionnent les divers produits partiels des cotes qu'ils ont données.

La somme des points qui résulte de cette opération, unie à la somme obtenue pour les compositions, pour l'aptitude physique et, s'il y a lieu, pour les points de majoration attribués aux diplômes ou certificats littéraires, détermine l'ordre de mérite de chaque candidat pour toutes les épreuves.

Aptitude Physique des Candidats.

Indépendamment des épreuves mentionnées ci-dessus, les candidats en subissent une autre pour la constatation de leur aptitude physique et de leur habileté dans l'exercice de l'équitation, de l'escrime, de la gymnastique, qui, toutes les trois, sont obligatoires.

Les examens d'aptitude physique ont lieu avant ou après les examens oraux du second degré. Le président de la commission en fixe le jour. Ils sont subis devant un jury composé de la manière suivante:

Un officier supérieur d'infanterie;
Un capitaine de cavalerie instructeur d'équitation;
Un officier d'infanterie instructeur de gymnastique et d'escrime.
Ces officiers sont désignés pour toute la période d'examens.

L'officier supérieur réunit, d'après les instructions de MM. les généraux commandant les corps d'armée, les candidats dans les locaux reconnus les plus convenables, après s'être entendu avec MM. les examinateurs pour fixer les jours et heures des épreuves d'aptitude physique.

Une cote de mérite, comprise dans l'échelle de 0 à 20, est donnée à chaque candidat pour chacune des trois épreuves de l'équitation, de l'escrime et de la gymnastique.

A la suite de ces épreuves, M. l'officier supérieur remet au président de la commission la feuille portant les noms des candidats accompagnés des cotes qu'ils ont méritées.

PROGRAMME DES CONNAISSANCES EXIGÉES.

Histoire.*

Henri IV.—Lutte contre l'Espagne.—Fin des guerres de religion; édit de Nantes.—Sully; reconstitution du royaume.

La France, de l'avènement de Louis XIII. à la mort de Mazarin.—Les Etats généraux de 1614.—Richelieu: lutte contre les protestants et contre les grands; accroissement de l'autorité monarchique.—Marine et colonies.—Minorité de Louis XIV.; Mazarin, la Fronde.

La politique européenne.—Le maison d'Autriche, les catholiques et les protestants en Allemagne.—La guerre de Trente Ans: intérêts des puissances qui y sont engagées; les armées et les bandes.—Grands généraux: Gustave Adolphe, Wallenstein, Turenne, Condé.—La paix de Westphalie et la paix des Pyrénées.

L'Angleterre sous les Stuarts.—La révolution de 1648; Cromwell; la Restauration.

Le mouvement intellectuel.—Sciences et philosophie; Bacon, Galilée, Descartes.—Lettres: l'influence espagnole; l'Académie Française; Corneille, Pascal.—Les arts: Poussin, Le Sueur.

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* Le programme de l'examen d'histoire et de géographie a été rapproché, autant que possible, du programme d'enseignement des lycées pour éviter que les candidats ne se croient obligés à se donner une préparation trop spéciale et nuisible par là-même à leur éducation intellectuelle.

Les candidats doivent, avant toutes choses, faire preuve de connaissances générales et réfléchies en histoire et en géographie.

L'examen ne portera pas sur les menus détails de l'histoire des guerres. Pour éviter l'abus, en cette matière, le programme, dont le caractère est limitatif, désigne, pour l'histoire, les hommes de guerre et les actions militaires, et, pour la géographie, les régions stratégiques, qui doivent être l'objet d'une étude plus attentive.

Partout ailleurs, ce sont les connaissances générales qui sont requises.

La société française.—L'hotel de Rambouillet.—La misère au temps de la Fronde; saint Vincent de Paul.

Louis XIV., la monarchie absolue.—Théorie du roi sur le pouvoir royal; la cour, les Conseils les secretaires d'Etat.—Colbert.—L'armée avant Louvois: recrutement, armement, commandement, administration; les réformes de Louvois.—Le génie militaire; Vauban.—Les affaires religieuses: la déclaration de 1682; la révocation de l'édit de Nantes.

La politique de Louis XIV.—Lyonne, Guerre de Hollande, Condé, Turenne, Duquesne.—Formation de la ligue d'Augsbourg; Guillaume d'Orange, Luxembourg, Catinat.

La révolution d'Angleterre.—Les Stuarts et le Parlement; avènement de Guillaume III.

Les coalitions contre Louis XIV.—La succession d'Espagne, Marlborough, le prince Eugène, Vendôme, Villars.

Dernières années de Louis XIV.—La cour; détresse financière; mort du roi.

Le mouvement intellectuel.—Les lettres; les grands classiques.—Les arts: Le Brun, Mansart, le Louvre, Versailles.—Les sciences.
Commencement d'opposition: Fénelon et le duc de Bourgogne; Vauban.

L'Europe vers 1715.—L'Europe occidentale après les traités d'Utrecht et de Rastadt.—Charles XII. et Pierre le Grand.

La France de 1715 jusqu'au milieu du XVIIIe. siècle.—La Régence, Law, Fleury, d'Argenson.

Les affaires européennes.—Succession de Pologne, Stanislas Leczinski en Lorraine.

L'Autriche et la Prusse pendant la première moitié du XVIIIe. siècle.—L'Etat prussien: Frédéric II. et Marie-Thérèse.—Guerre de la succession d'Autriche; le maréchal de Saxe.—Guerre de Sept Ans.—Frédéric II. comme général.

Les affaires maritimes et coloniales.—Rivalité de la France et de l'Angleterre en Amérique et aux Indes.—L'empire anglais.

L'Europe orientale.—La Russie, Catherine II.; conquêtes sur la Turquie.—Partage de la Pologne.

La fin du règne de Louis XV.—Le Parlement, Choiseul, Maupeou.

Le mouvement intellectuel et politique.—Les lettres et les arts; les sciences; les philosophes et les économistes en France.

La France à l'avènement de Louis XVI.—La cour; l'administration; plaintes contre l'arbitraire et la confusion; classes privilégées; plaintes contre l'inégalité.—Essais de réforme, Turgot, Necker.—Les Etats généraux.

La guerre d'indépendance en Amérique.—Les colonies anglaises d'Amérique, leur soulèvement; intervention de la France.—Constitution américaine de 1787.

Les Etats généraux et la Constituante.—Suppression de l'ancien régime et constitution du nouvel état de choses.

L'assemblée législative et la Convention.—Chute de la royauté.—Girondins, Montagnards, les Clubs, les Jacobins, la Commune de Paris, le comité de Salut public, la Terreur.
Lutte contre l'Europe et contre les soulèvements à l'intérieur.—Les armeés de la République, Jourdan, Hoche; traités de Bâle.
Réformes de la Convention.
Le Directoire. Campagnes d'Italie, d'Egypte; Bonaparte, Moreau, Desaix, Kléber.—Nouvelle coalition. Les coups d'Etat, le 18 Brumaire.

Le Consulat et l'Empire.—Marengo et Hohenlinden; paix d'Amiens.—Les institutions du Consulat et de l'Empire.—Les Codes, le Concordat, la Légion d'honneur, la Cour impériale, la noblesse d'Empire, l'Université. Travaux publics.

Les guerres de l'Empire.—La grande armée, les institutions militaires.—Grands généraux: Masséna, Lannes, Davout, Ney, Murat.
Le camp de Boulogne, Ulm et Austerlitz, traité de Presbourg; Iéna et Auerstaedt.—Le Blocus continental, Eylau et Friedland, paix de Tilsitt.
Napoléon en Espagne; Essling et Wagram.—Traité de Vienne.
Marriage de Napoléon et de Marie Louise; le roi de Rome.
La Moscowa, Moscou, la retraite de Russie.—Bataille des Nations, campagne de France, abdication de Napoléon.—Les Cent Jours, Waterloo, les traités de 1815.

La Sainte-Alliance et les peuples.—Le chart de 1814.—Le régime parlementaire en France sous Louis XVIII. et Charles X.

Lutte contre l'esprit nouveau en Italie, en Espagne et en Allemagne.—Affranchissement de la Grèce.—Politique de la France.—Prise d'Alger.—La Révolution de 1830.

Mouvement des esprits depuis la fin du XVIIIe. siècle.—Renouvellement des littératures allemande et anglaise, caractère de la littérature française sous l'Empire.—Le romantisme.—Les grands peintres de la Révolution et de l'Empire.

Développement des sciences exactes, physiques et naturelles ; applications, la vapeur, l'électricité.—Progrès de l'industrie.

Louis-Philippe.—La nouvelle Charte.—Principaux orateurs et hommes d'Etat ; les partis, les sociétés secrétes.

Effets produits par la Révolution de 1830, en Europe ; Belgique, Pologne, Espagne.

La question d'Orient ; caractère de la politique extérieure de Louis-Philippe.—Conquête de l'Algérie.

Révolution de 1848.—Causes de la Révolution en France.—La question électorale.—La République de 1848, contre-coup en Europe.

Changements survenus dans le Gouvernement de la France depuis 1848.—La constitution de 1852 et le second Empire.—La République.—Lois constitutionnelles de 1875.

La politique extérieure.—Guerre de Crimée, l'Alma Sébastopol.—Formation de l'unité italienne ; guerre de 1859, Magenta, Solférino.—Le royaume d'Italie.

Formation de l'unité allemande : Sadowa, nouvelle contitution de l'Allemagne, de l'Autriche-Hongrie.—Guerre de 1870-1871 ; l'invasion, le siège de Paris ; la lutte en province.

L'empire allemand.—Les stipulations du traité de Francfort.

La question d'Orient, intérêts de la Russie et de l'Autriche.—L'Angleterre et la Russie en Asie.

Expansion de la civilisation européenne.—Tableau des colonies européennes.

Geographie.

L'Europe.

Géographie physique.—Mers, côtes, îles, détroits, etc.

Orographie.—Division en massifs montagneux, altitudes moyennes.

Hydrographie.—Etude des régions traversées par l'Escaut, la Meuse, le Rhin, l'Elbe, l'Oder, la Vistule.—Etude succincte des autres cours d'eau du versant nord de l'Europe.

Etude des régions traversées par l'Ebre, le Pô, le Danube.—Etude succincte des autres fleuves de la région du versant de la Méditerranée.

Géographie politique.—Les six grands Etats européens : limites, populations, races, religion, gouvernement, richesses commerciales et industrielles.

Notions sommaires sur les Etats secondaires.

Chemins de fer.—Les grandes lignes de communication internationales.

La France.

La situation géographique, longitude et latitude extrêmes, limites.

Géographie physique.—Mers, leur description ; côtes et îles.

Orographie.—Pyrénées, Alpes, Jura, Vosges, Plateau central. Cévennes et massifs secondaires.

Hydrographie.—Seine, Loire, Garonne, Rhône.—Etude succincte des fleuves secondaires.

Géographie politique.—Frontières, leur tracé.—Anciennes provinces, départements qui en ont été formés, chefs-lieux.—Division de la France en corps d'armée.

Chemins de fer.—Grandes lignes, leur liaison avec les principaux réseaux étrangers.

Navigation intérieure.—Les grands canaux.

Colonies.—D'Asie, d'Afrique, d'Amérique et d'Océanie.

Algérie et Tunisie.—Description physique et politique ; étendue et limites.—Côtes.—Orographie et hydrographie.—Tell et Hauts-Plateaux.—Sahara.

Asie.

Mers, côtes, îles, caps, etc.

Orographie.—Grands massifs.

Hydrographie.—Grands fleuves.

Possessions de la Russie, de l'Angleterre, de la France ; notions sommaires.—Chine et Japon.

Afrique.

Mers, côtes, îles, caps, etc.—Fleuves et lacs.—Colonies européennes.—L'Egypte.

Amérique.

Mers, côtes, îles, caps, etc.—Grandes chaines de montagnes et grands fleuves.—Colonies européennes.—Etats-Unis.—Notions sommaires sur les autres Etats d'Amérique.

Océanie.

Archipels et îles.—Colonies européennes.

Langue Allemande.

1. Faire quelques lignes de thème au tableau.
2. Lire l'écriture usuelle allemande.*
3. Expliquer un texte allemand à livre ouvert.
4. Converser en allemand.

Langue Anglaise.

Les candidats, qui en feront la demande, seront interrogés sur la langue anglaise pour laquelle une note leur sera attribuée.

Algèbre.

Division des polynômes.—Division des polynômes ordonnés par rapport aux puissances décroissantes de x.—Reste.—Cas où le diviseur est $x—a$.

Fractions algébriques.

Equations.—Principes relatifs aux équations et aux systèmes d'équations.

Résolution des équations du 1er. degré.—Problèmes qui en dépendent.

Inégalités.—Principes généraux.—Résolution des inégalités du 1er. degré à une inconnue.

Résolution de l'équation du 2e. degré à une inconnue.—Relation entre les coefficients et les racines.—Applications.

Décomposition du trinôme du 2e. degré en facteurs du 1er. degré. Résolution des inégalités du 2e. degré à une inconnue.

Résolution des équations et des inégalités qui dépendent du 2e. degré.

Problèmes du second degré.

Fonctions alegébriques explicites d'une seule variable,—Continuité. Exemple de fonctions continues (binôme du 1er. degré en x, trinôme du second degré). Definition de la dérivée d'une fonction explicite d'une seule variable. Exemples simples.

Notions sur le calcul des dérivées. Derivée d'une somme, d'un produit, d'un quotient. Dérivée de x^m, d'un polynôme entier en x, d'une fraction rationnelle du 1er. degré et du second degré en x. Dérivée de sin. x, de cosin. x, de tang. x,

Fonction croissante et décroissante.—(1.) Pour une valeur donnée de la variable; (2.) Dans un intervalle donné. Maximum et minimum d'une fonction explicite d'une seule variable.

Application des principes précédents à l'étude des variations de quelques fonctions simples (binôme du 1er. degré, trinôme du second degré, fractions rationnelles du 1er. et du second degré). Courbes représentatives de la marche de ces fonctions.

Application à des questions de maximum et de minimum.

Progressions arithmétiques et géometriques.—Logarithmes. Usage des tables à 5 décimales.—Intérêts composés et annuités.

Géomètrie.

Lignes proportionnelles.—Similitude; homothétie; relations métriques.—Problèmes graphiques.—Lieux géométriques.

Polygones réguliers.—Longueur de la circonférence.

Aires planes.

Plan.—Droite perpendiculaire à un plan.—Parallélisme des droites et des plans.—Angle dièdre.—Plans perpendiculaires entre eux.—Angle d'une droite et d'un plan.—Ligne de plus grande pente.

Trièdres.

Polyèdres.—Volume.—Similitude.

Cône et cylindre.—Surface.—Volume.

Sphère.—Section plan.—Plan tangent.—Rayon d'une sphère impénetrable.—Aire et volume.

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* Il sera tenu un compte sérieux de la lecture des autographes.

Géométrie Descriptive et Géométrie Cotée.*

Répresentation de la droite.—Graduation, pente, intervalle.

Répresentation du plan.—Horizontale; ligne de front; ligne de pente; échelle de pente.

Droite commune à deux plans.—Point commun à une droite et à un plan.—Représentation des prismes et des pyramides.—Ponctuation.—Section plane.

Droite perpendiculaire à un plan.—Distances.

Angle de deux droites.—Angle de deux plans.

Projection d'une courbe.—Tangente.—Projection du cercle.—Projection de l'hélice sur un plan parallèle à l'axe du cylindre.

Surfaces.—Plan tangent.—Normale.

Problèmes éléméntaires sur les plans tangents aux surfaces coniques et cylindriques, aux surfaces de révolution.—Application aux questions relatives aux angles d'une droite ou d'un plan avec une droite ou un plan donné.—Plan de pente donnée passant par une droite.

Projection et vraie grandeur de la section plane: d'une sphère, d'une cône ou d'un cylindre du second degre.

Trigonométrie Rectiligne.

Arcs positifs, arcs négatifs.

Lignes trigonométriques d'une arc; leur variation.

Arcs correspondant à une ligne trigonométrique donnée.

Relations entre les lignes trigonométriques d'un même arc.

Théorème des projections.

Addition, multiplication, division des arcs (non compris les formules relatives à la trisection).

Transformation des sommes en produits.

Usage des tables trigonométriques à 5 décimales.

Résolution des triangles.—Applications.

Application de l'Algèbre et de la Trigonométrie a la Géométrie.

Coordonnées rectilignes rectangularies d'un point.—Transformation des coordonées.—Distance de deux points.

Ligne représentée par l'équation générale du 1er. degré à deux variables. Coefficient angulaire d'une droite. Angles de deux droites. Distance d'une point à une droite.

Classification des lignes représentées par l'équation générale du 2e. degré à deux variables, par la résolution de l'équation.

Réduction aux formes simples par la transformation des coordonnées.

Montrer sur les formes réduites que chacune de ces courbes est le lieu géométrique des points dont le rapport des distances à un certain point de l'un de ses axes et à une perpendiculaire à cet axe est constant.

Etude géométriqne élémentaire de ces courbes, déduite des propriétés focales.

Direction de la tangente en un point de la ligne représentée par une fonction explicite.—Application aux fonctions dont la variation a été étudié en algèbre.

Nota.—Il ne sera question que des coordonnées rectangulaires.

Mécanique.

Statique.

Notions préliminaries sur les forces; dynamo-metres.

Composition de deux forces appliquées à un point.—Parallélogramme des forces.—Théorème des moments par rapport à un point du plan des forces.

Composition d'un nombre quelconque de forces appliquées à un point matériel.—Polygone des forces.—Décomposition d'une force en trois autres.—Projection de la résultante sur un axe.—Expression analytique de la condition d'équilibre d'un nombre quelconque de forces appliquées à un point matériel.

Composition des forces parallèles.—Définition du couple; un couple n'a pas de résultante. (La théorie des couples n'est pas demandée.)—Théorème des moments par rapport à un plan parallèle à la direction commune des forces.—Centre des forces parallèles.—Centre de gravité; sa détermination dans les cas simples.

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* Un point est donné par sa projection orthogonale sur un plan, et, soit par sa cote relative à ce plan, soit par sa projection sur un second plan perpendiculaire au premier.

Réduction des forces appliquées à un corps solide.—1. Réduction à deux forces. 2. Réduction à une force et à un couple,—Condition d'existence d'une résultante unique.

Condition générale de l'équilibre d'un corps solide.—Théorème des moments par rapport à un axe.—Expression de la condition d'équilibre d'un corps solide par six équations.

Machines simples.—Levier: balance ordinaire, romaine, bascule du commerce.—Poulie fixe, poulie mobile, moufles.

Treuil et ses variétés usuelles.

Plan incline.

Notions élémentaires sur le frottement.

Cinématique.

Mouvement rectiligne uniforme.—Vitesse.—Equation du mouvement.

Mouvement rectiligne varié.—Vitesse.—Tracé géométrique représentant la loi du mouvement.

Mouvement rectiligne uniformément varié.—Accélération.—Loi du mouvement.

Loi de la chute des corps dans le vide.—Appareil Morin.

Accélération dans le mouvement rectiligne quelconque.—Composition de deux mouvements rectilignes uniformes simultanés.—Projection du mouvement sur trois axes rectangulaires fixes.

Composition de deux mouvements rectilignes simultanés uniformément variés.

Mouvement des projectiles dans le vide.

Mouvement de rotation uniforme autour d'un axe fixe.—Vitesse angulaire.

Dynamique.

Loi de l'inertie; loi du mouvement relatif; extension de la notion d'équilibre.

Mouvement produit par une force constante.—Proportionnalité des forces constantes aux accélérations.—Masse.

Expression d'une force variable au moyen de la masse du point sur lequel elle agit et de l'accélération du mouvement produit.

Du travail mécanique.—Unités de travail; travail de la résultante de plusieurs forces concourantes; travail de la pesanteur dans le mouvement d'un corps pesant.

Machines à l'état de mouvement.—Forces motrices et résistances.—Egalité du travail moteur et du travail résistant lorsqu'on ne tient pas compte des résistances passives.

Notions sur les résistances passives; exemples.

Relation générale entre le travail moteur, le travail utile et le travail passif.

Principe des forces vives dans le cas d'un point matériel sollicité par une force.—Pendule simple; durée d'une petite oscillation.—Énoncé du théorème général des forces vives.

Physique.

Hydrostatique.

Principe d'egalité de pression dans les fluides en équilibre.—Surface libre des liquides pesants en équilibre.—Pression sur une portion fine de paroi plane.—Presse hydraulique.—Principe des vases communiquants.—Principe d'Archimède.

Poids spécifiques.—Densités; leur détermination.

Pesanteur de l'air.—Baromètres.

Loi de Mariotte.—Machine pneumatique; pompes; siphons; aérostats.

Chaleur.

Thermomètre.—Coefficients de dilatation; leur détermination pour les solides et les liquides.

Production de chaleur par dépense de travail; réciproque.—Notions sur l'équivalence du travail mécanique et de la chaleur.—Colorie.—Définition de la chaleur spécifique.

Changements d'état des corps.—Fusion; solidification; dissolution.—Mélanges réfrigérants.

Vaporisation dans le vide; vapeurs saturantes et non saturantes.—Maximum de tension.—Vaporisation dans les gaz.

Etat hygrométrique de l'air.—Pluie; neige; rosée.

Evaporation; ébullition; distillation.

Electricité.

Electrisation par influence.—Electroscope ; électrophore ; machine électrique.

Condensateur.—Bouteille de Leyde ; batterie.
Foudre ; paratonnerre.

Piles : leurs effets.—Galvanoplastie.

Aimants.—Définition de la déclinaison ; boussole.—Aimantation.
Galvanomètre.—Electro-aimant.—Télégraphe Morse.

Induction.—Bobine Ruhmkorff.—Machine Gramme.

Optique.

Reflexion.—Miroirs plans et miroirs sphériques.

Réfraction.—Prismes.—Dentilles.
Loupe.
Lunette astronomique ; lunette terrestre ; lunette de Galilée.
Télescope de Newton.

Dispersion de la lumière.—Spectre solaire ; spectres de diverses sources lumineuses.

Nota.—Les questions posées sur ces différentes matières ne dépasseront pas le niveau de l'enseignement dans la classe de mathématiques élémentaires.

Cosmographie.

Constellations et principales étoiles.

Sphère céleste.—Uniformité de son mouvement apparent ; mouvement réel de rotation de la terre sur elle-même ; pôles ; méridiens ; hauteur et azimuth ; ascension droite et déclinaison.

Terre.—Longitude et latitude géographiques ; grandeur du rayon de la terre supposée sphérique ; aplatissement ; longueur du mètre ; système métrique.

Construction des cartes.—1. Projections orthogonales ; 2. Projections polyédriques ; 3. Projections stéréographiques ; 4. Projection de Mercator ; 5. Développement conique ; 6. Carte d'état-major.

Topographie

Planimétrie.—Echelles ; echelle graphique ; approximation.

Figuré du terrain.—Courbes de niveau ; équidistance.—Lignes de plus grand pente ; hachures ; éclairement zénithal ; loi du quart ; loi du diapason français, usage.

Mouvement du sol.—Croupe ; vallée ; ligne de faite ; thalweg. Mamelon ; bassin ; confluent ; col.

Mesure des distances sur le terrain.—Chaîne ; décamètre à ruban ; pas étalonné.—Projection horizontale d'une distance mesurée.—Stadia et lunette astronomique.

Mesure des angles.—Limbe gradué ; vernier ; graphomètre.—Projection horizontale d'un angle.—Azimuth.—Boussole.—Réduction d'un angle au centre de station.

Théorie de l'exécution d'un levé régulier.—Planimètrie, polygone topographique, levé de ce polygone par la méthode d'intersection ou par la méthode de cheminement, usage du graphomètre ; usage de la boussole ; usage de la planchette ; levé des détails.

Evaluation de la différence des cotes de deux points.—Méthode directe : niveau d'eau.—Méthode indirecte : éclimètre.

Notions élémentaires sur la lecture de la carte d'état-major au $\frac{1}{80000}$.

Tableau des Coefficients.

Les coefficients sont fixés ainsi qu'il suit, tant pour les compositions que pour les examens oraux et l'aptitude physique :

1. *Compositions.*

1. Composition française		14	
2. Composition mathématique		14	
3. Calcul logarithmique		2	
4. Epure		6	
5. Dessin d'imitation		3	
6. Dessin topographique		2	
7. Thème allemand		8	
8. Version allemande		4	
Total		53 ci.	53 53

2. *Examens du Premier Degré.*

1. Physique, mécanique, cosmographie, topographie		10	
2. Algèbre, géométrie, géométrie descriptive et cotée, trigonométrie, applications de l'algèbre à la trigonométrie et à la géométrie		10	
3. Histoire et géographie		10	
Total		30 ci.	30
Somme des coefficients pour l'admissibilité			83

3. *Examens du Second Degré.*

Lettres	Composition française (coefficient supplémentaire		2	
	Histoire		14	
	Géographie		14	
	Allemand		10	
	Anglais (facultatif) (*)		2	
Sciences	Algèbre et trigonométrie rectiligne		16	
	Géométrie		12	
	Géométrie descriptive et cotée		10	
	Applications de l'algèbre		10	
	Cosmographie et topographie		5	
	Physique et mécanique		18	
	Total		114 ci	114

4. *Aptitude Physique.*

Aptitude physique	Equitation		2	
	Escrime		3	
	Gymnastique		3	
	Total		8 ci	8
Sommes des cofficients pour l'admission				175

* Toute note inférieure à 10 sera portée pour mémoire seulement et n'augmentera pas le nombre des points du candidat.

C.

GERMANY.

Appointment of Officers of the Active Army (Aktive Offiziere).

Such a thing as a competitive examination, whether of a physical or of an educational nature, is unknown in the German Army. Qualifying examinations are alone the rule.

The recruitment of the corps of officers is assured either by the promotion to a commission of persons who join the ranks as candidates for commissions (Avantageure), or by the appointment of cadets from the cadet corps. In both cases the candidate for a commission must first pass an educational test, and be appointed sword-knot ensign (Portepee-Fähnrich). Exclusive of foreign languages his education in non-military subjects (except in the case of an officer of foot artillery, or of engineers and pioneers) is now complete. He has, however, to pass a military test before being appointed second lieutenant. Officers of the foot artillery and of engineers and pioneers, are at first appointed supernumerary second lieutenants, and are only brought on to the establishment after passing through the artillery and engineer school. Before appointment, every candidate must be declared "worthy to be received among them" by a majority of the officers of his regiment. Such is the general outline of the system.

E. AGAR, *Staff Captain.*

3rd February, 1894.

Index to and Abstract of each Witness's Evidence.

BAKER, Mr. W. M., Army Class Master at Cheltenham (885–1005).

Age.—Approves recent reduction of age for Sandhurst (919). No necessity for altering present limits of age laid down for Woolwich and Sandhurst (995).

Army Class.—Most Woolwich boys choose Mathematics, many Chemistry, but none Physics, the school staff being insufficient for the last (896-9). If a boy wished to take Physics arrangements would be made to enable him to do so (900). Army class more successful now that the limit of age of entrance for Sandhurst has been reduced (919). A larger proportion successful for Woolwich than for Sandhurst, the candidates for the latter being generally those who have failed for the former (920–2). Woolwich candidates are boys of high mathematical power (915); but less physically capable than Sandhurst boys (916); who, on the other hand, are usually not boys of very great intelligence (905). Army boys do not take up Greek (903), and are deterred from Science by course of instruction at Woolwich (942). Sandhurst boys are equally divided between Science and German (943). French and German taught by foreigners as well as Englishmen (947–8). The range of Mathematics taught in the Army class is that of Syllabus for entrance to Woolwich, but wider in the rest of the school (952–7); sends up about 16 or 17 boys to each examination (1000).

Candidates.—*Bona fides* of, should be required (1001).

Examination in Literary Subjects.—Would like to see one examination for Sandhurst and Woolwich (993–4), and would like the dates fixed more nearly towards the end of the school term (997). Would like examinations to be held at different centres (998–1000), definite instructions given to candidates as to where to go for *viva voce* (1001), and in publishing the results, the place of origin of the successful candidates shown (1001–5).

Examiners (*see* Papers).

Marking for Higher Mathematics unsatisfactory, it having become harder within last two years to score in this subject than in others (888, 890–3, 962); reason being that most of the problems set had one method of solution only (890). This does not apply to Obligatory Mathematics (889). Boys of unusual mathematical ability still get good marks (891); was not aware that the average marks obtained have progressively increased, but thinks average marks in other subjects have increased in greater proportion (894–5) Sandhurst boys find English History a difficult subject to score in (905). Some system by which it might be secured that the highest marks and the lowest in the different subjects more nearly coincided might be arranged (991–2).

Marks assigned for optional subjects, under a system of free choice would have to be equal (939–41); 1,000 too many for English composition, unless more than the mere writing of an essay is required (909–11, 914). Approves of the marks for Geometrical Drawing having been raised to 1,000 (949). Division of Higher Mathematics into two branches would not be giving too many marks for the one subject (968, 978).

Papers.—Decrease in number of papers in Higher Mathematics a disadvantage to ordinary boy (963–5). A separate paper should be devoted to conic sections (969–70). Does not think papers need be looked over by more than one examiner (982–992), any more than in important school examinations at Cheltenham (987), though the papers of the lower school are generally submitted to two examiners (985–6). The strangeness of results of examinations generally due more to the boys themselves than to the capriciousness of examiners (982–4). Examiners do not differ much, except in subjects like History (988–990). In Dictation fewer candidates should be examined at a time (1001).

Syllabus of Subjects.—Thinks three obligatory subjects (Mathematics, Latin, and one Modern Language) and one optional subject enough; two optional subjects, making five in all, too much (931–3); it would also be better for the boys' education (934). Would not diminish the choice, and thinks a system by which, Mathematics being compulsory, a free choice of a limited number of other subjects would be allowed as good as the present system (935–8). Latin should be taken by all, no alternative being allowed (901–2). English History, a good examination subject, and taken by majority of candidates for Sandhurst; would not displace it, but would not make it obligatory (904, 906–8). Greek not taken up at Cheltenham by Army boys (903). English Essay a useful subject, but not much time can be given to it; it might usefully include a review of a pamphlet or article (909–12, 914). Thinks there is no difference, educationally, between French and German (946). Thinks Higher Mathematics might be divided into two subjects, maintaining the present range of the subject, and not replacing the Calculus, which is too advanced for most boys of 19 (950–1, 958–62, 967). This division of Higher Mathematics might reduce the standard of knowledge of the subject if only one branch were chosen as one of the candidates' two optional subjects (971–8). Physics not a subject which public schools are likely to take up; one of the five branches can easily be dropped (979–81).

Physical Examination.—Candidates from Cheltenham for Woolwich are physically capable, but less so, owing to the harder work, than those for Sandhurst (916–7); the standard of the latter has not altered (918). Has not considered possibility of a competitive physical examination of all or any proportion of the candidates, but thinks such would be a good thing. if arranged fairly, but it would be very difficult (923–30).

BIDDULPH, General Sir ROBERT, G.C.M.G., C.B., late Director-General of Military Education (130–201).

Army Classes at public schools may, to some extent, combine the advantages of the teaching of crammers and the discipline of school (138–9).

Candidates.—Prefers them straight from the public schools (147–8), because of the tone and discipline, and these cannot be well recovered at Woolwich (170). Has had no opportunity of watching subsequent careers of successful candidates (184).

Education of some Officers who are, perhaps, mainly those who have not been through Sandhurst or Woolwich has been complained of (184–6).

Examination in Literary Subjects.

Marks.—More marks might be given for the English Essay (161). Would not require a minimum except in Further Mathematics (182, 198–9).

Preliminary Examination.—Objects to its abolition (198–9).

Syllabus of Subjects is in its present form the result of representations of the Civil Service Commission to the Secretary of State for War, in 1888, as to the bad state of the general education of the candidates (133). Latin was then made compulsory because of the superiority of the general education on the classical side of public schools, but not on the suggestion of the schools (134–7). Would not add to the mathematical subjects (the calculus required for the Engineers only); prefers good groundwork of knowledge (140–6). The comparatively disadvantageous position of Science in the syllabus has been remedied by dispensing with the voluntary second Modern Language in the course at Woolwich (149–52), which will make it more worth while for a candidate to take up Science at the entrance examination (153, 200–1). Thinks it better for an Officer to know Science, especially Electricity, than a second Modern Language (154–6). The marks for Chemistry and Electricity, at Woolwich, are accordingly to be increased (157–9). Would not alter the syllabus for Sandhurst, which gives good results (193–4). Would not make Science obligatory in the entrance examination for fear of unduly extending the range of work required of boys (173, 193–4). Latin ought to be obligatory in the entrance examination, because of the training given by the process of acquiring it, and its study gives power and facility of expression, and the Civil Service Commissioners pointed this out when Latin was made compulsory (134, 160, 167, 171–2). Obligatory does not mean that a minimum is required in each subject so classified, but that such an aggregate in the class must be obtained as indicates a general proficiency, and that alternative subjects may not be taken for them (162–6). Would not require a minimum except in Further Mathematics (182). Would not reject a candidate who failed to obtain a prescribed minimum in one subject, being brilliant in others (198–9). English history is optional (168–9). Would not favour an open system of unlimited choice, with a minimum; this has been tried and was abandoned (174–8, 183). As primary subjects of a general education, thinks good obligatory subjects for the Army are Elementary Mathematics, English, French or German, Geography, Geometrical Drawing, and some English history (179). Special utility subjects of general education for an Army Officer are Mathematics, Latin, and Geometrical Drawing (189–190). Excluding these and excepting the question of general ability or training, there is no difference between the tests applied to candidates for entrance to Army and those for other departments of the public service (187–8). Geometrical Drawing ought not, at the entrance examination, to include Descriptive Geometry (191–2). Précis writing is valuable, but need not be added for the entrance examinations (195–6).

BULLER, General Sir R. H., V.C., K.C.B., &c., Adjutant-General (1588-1623).

Examination in Literary Subjects.

Syllabus of Subjects should be as wide as possible, should be so devised as to require a system of previous education which is applicable to other professions than the Army. The examinations should secure the well-educated boy, *i.e.*, the boy who has been taught to observe and use his observation, and the Army will not be improved by laying down what those entering the Service ought to know (1596, 1600, 1606, 1607). Except for Woolwich the entrance examinations should not be specialized, and Geometry should not be compulsory, though it should have its value recognized equally with other subjects (1597-8). Scientific subjects are important, though young boys rather cram them, and it would therefore be better to leave them for the special course at Woolwich (1599–1601). Agrees with present obligatory subjects; would retain Latin as one, it being a prominent subject of education in the best schools; and (if it were possible with boys of that age) would add both French and German (1602-4). Knowledge of Latin assists the acquisition of French (1604-5). Prefers German to French (1605). Would require Mathematics, a language, good writing, and correct spelling, and make the rest of the examination as wide as possible, care being taken to prevent mere smatterings of knowledge (1607). A boy ought to know some History, but that could not be taught in the limited time at Woolwich and Sandhurst, where, however, a Modern Language might be continued (1608-11).

Militia Officers.—The examination of, for the Army commissions is not satisfactory (1613). An undue proportion of Militia candidates fail in their subsequent examinations in the Army; and they seem to be less equipped intellectually, and not more so physically, than Officers coming through Woolwich and Sandhurst (1613-15). The object of giving Army commissions to Militia Officers is to officer the Militia (1618). Would not object to raising the standard of qualification required of Militia candidates, but doubts whether the result would be an improvement in the quality of the candidates (1619-20).

Physical Examination.—Would deprecate a physical competitive examination: Physical development of lads of the age of the Woolwich and Sandhurst candidates is no evidence of their powers seven years later, nor of the possession of the qualities which make a successful Officer. A general average standard of physical qualification should be laid down by the doctors, advertised, and adhered to strictly, and normal eyesight should be required (1589-91, 1593-5). Has no reason to be dissatisfied with the class of candidates at present entering the Army, but some are not what they should be (1592). As a rule, the very strong men do not bear the strain of a long campaign as well as others less strong (1589, 1612). This strain seems to be borne best by men possessing some indefinable quality which no method of examination could discover (1616-7).

BURNETT, Colonel C. J., C.B., Assistant Quarter-Master-General at Head-Quarters (1377-94). Was formerly in East Yorkshire Regiment, and commanded the 1st Battalion Royal Irish Rifles; has seen active service on West Coast of Africa, and in Afghanistan (1377-8).

Examination in Literary Subjects.

Syllabus of Subjects.—An Officer ought to have considerable knowledge of Mathematics and Latin, which is most useful and necessary to every man (1390-1). Modern Languages, Drawing and Science are useful; Geometrical Drawing is purely mechanical (1392-4).

Physical Examination.—Has had opportunities on active service and at manœuvres of observing physical character of Officers, and considers they are as good, in every respect, as they were in 1861, when he joined, and in respect of size, they are bigger (1379-82). Does not think any advantage is to be gained by giving marks for riding, shooting, swimming, &c., the present medical examination, properly carried out, being sufficient for the purpose of giving the Army Officers with sound bodies, mental intelligence being gauged by the literary examination (1383-6). To command a rank and file of considerable intelligence superior intelligence is required (1384-5). Eyesight should be normal (1387-8). The medical examination should be strict, and no latitude allowed on the chance of subsequent development (1390).

CAMBRIDGE, H.R.H. THE DUKE OF, K.G., Commander-in-Chief of the Army (1621-1636).

Examination in Literary Subjects.

Syllabus of Subjects should be arranged so as to be a test of general education, in the case of the ordinary Officer (1627-8), but Mathematics is necessary for the Artillery and Engineers, and it is an advantage to have a fair proportion of Officers generally with a knowledge of that subject (1627). French and German are more important for the ordinary Officer than Mathematics (1629), and German is now as important as French (1634). A study of a modern language might be continued at Sandhurst and Woolwich (1633).

Physical Examination.—Thinks much the same class of men come into the Army now as formerly, though some get in who physically are not all that could be desired, in which respect there has been no change in the last 20 years (1622-4, 1630). Has had no reports of Officers being physically incapable (1625). Would like a physical competitive examination, but is not prepared to say how the difficulty of arranging it together with a literary competition can be overcome (1626). Some who get in are physically inferior to some who get lower marks in the literary examination, but who have fair intellectual attainments (1626). Thinks that in the German Army there must be some physical competitive test (1631). Would not require normal eyesight, having regard to the success in the foreign armies attending the absence of a prohibition to wear glasses (1635-6).

CHESNEY, General Sir G. T., K.C.B., C.S.I., C.I.E., R.E., M.P., formerly Head of the Royal Indian Engineering College, Coopers Hill, and has served in India in various capacities for 30 years (1831-1891).

Candidates should be the best from the public schools and, if the right class can be secured, from the Universities (1835, 1840, 1862-3).

Coopers Hill supplies civil engineers for the Indian Public Works Department, the course lasting four years (1833). The examiners in examinations for and at Coopers Hill were appointed and supervised by himself (1856-61). There was only a qualifying medical test (1870).

Examination in Literary Subjects.—Delay in bringing out the results ought to be avoided. At Coopers Hill the results were known within two days of the end of the examination (1877-1881).

Examiners (*see* Papers).

Marking.—"Mark-hunting" under an open system could be avoided by a high minimum (1853); should be supervised as was done at Coopers Hill, but this is not necessary with experienced examiners (1858-60).

Marks for colloquial knowledge of Modern Languages should be low (1842). A high minimum, in each subject, should be required under an open system (1846-7, 1853). Subjects must not be marked equally, but according to their relative value, educationally (1852, 1854, 1891), but subjects might be grouped and equal maxima assigned to the groups (1855).

Papers should be supervised so as to secure uniformity of standard (1855-6). This was done at Coopers Hill (1856-61). There should be more papers in each subject, and too much value should not be given to cram questions, *e.g.*, literature questions in Greek papers (1886-7).

Syllabus of Subjects is unsatisfactory, as it checks the flow of the sort of material wanted for the Army (1834). The object of the examination should be to secure the best raw material, and the syllabus should be a test of mental capacity, a test of education rather than of training (1835), the school curriculum being taken as the basis (1886); would only require Mathematics and either French or German as obligatory, the rest of the examination being wide, and free choice allowed, but a minimum in each subject required, so as to secure the best boys in any line or lines at the best schools (1836-8, 1841, 1843, 1846-7). The examinations should be adapted to the curricula of the schools (1863, 1886). By obligatory he means that a minimum should be required, but it should not be high, and should be the same for Woolwich and Sandhurst (1837-8, 1843). Colloquial knowledge of Modern Languages is not a test of mental capacity, and is properly assigned only low marks (1842). Latin should not be obligatory, but should count highly as a test of education (1843). Geometrical Drawing should on no account be obligatory, it is badly taught in schools, and is no test of mental

capacity (1845, 1883-4). Descriptive Geometry should be left till candidates are older (1885). English is a cram subject (1848). In order to prevent a smattering of knowledge, prefers a system of free choice with a high minimum to a system of limited choice (1850-1, 1853). Subjects might be grouped, and equal maxima assigned to the groups (1855). Would not make Science obligatory, but would give full value to a good knowledge of that subject, as of any other (1888-90).

Physical Examination.—Does not see how it could be made competitive with any good result (1871). The present class of young Officer is of excellent physical quality, and could hardly be improved, is superior to that of former days (1872-73). Has had experience of campaigning, and thinks the qualities most to be sought for are readiness to accept responsibility, power of decision, &c., which can hardly be made subjects of an examination (1874-5).

Sandhurst.—The hours of study being increased the course of instruction might include some Foreign Languages and Mathematics (1868-9).

Woolwich, the course at, should be 2½ years at least, as formerly, especially now that Engineering and Artillery Science is so much less simple than it was (1863-5). In Germany similar courses last three or four years (1866).

CLARKE, Brigade-Surgeon Lieut.-Colonel A. F. S., M.D., Medical Officer at the Royal Military College, Sandhurst, for the last 10 years (1653-91).

Physical Examination.—The class of Officer coming into the Army has improved (1688). All the successful candidates for Sandhurst are medically examined, and doubtful cases are referred to the President and himself (1655). Six were rejected on last occasion, for various causes (1656-7). The general physique of the cadets has much improved in last 10 years, having now more to tax their capabilities; and in the last year or two a minimum standard of height and chest measurement has been laid down, but not invariably adhered to, cadets having been admitted under the standard, but on the understanding that on leaving Sandhurst they shall have reached it (1658-60, 1687). This standard thus applies rather to a candidate when quitting than when joining Sandhurst (1666-8). The standards of height and chest measurement should vary proportionately to each other and to age (1660). The present standard is an easy one (1661-2). While at Sandhurst the cadets improve enormously (1662). The measurement, shape, and development of the chest are of more importance in judging a youth's fitness than lung capacity (1663-4). Speaking generally, the sight of both eyes should be the same (1669-70). The present method, coupled with an increase of the standard of chest measurement, gives, as a rule, the men the Army wants; and a physical competitive examination would be difficult to arrange, and would be unfair; and though the Army might gain something from it in physique, it would lose in brain power (1671-6). The requirement of an extra half-inch in the minimum chest measurement would disqualify about 10 per cent. of the candidates (1677). It would be difficult to mark boys according to their comparative conditions after a walk of 10 miles, which, with a knapsack, would be a severe test (1678-80). After the hard work for the examinations, the candidates are "played out"; this is more noticeable in those who come from private tutors than from schools (1681-2). The medical examination could not be as strict as that for an insurance case, which takes three-quarters of an hour (1683); it includes a test for spinal curvature (1684), and it is not necessary to increase it in severity (1685). Assuming that the average chest measurement has decreased, that fact would be explained by the decrease in the maximum limit of age and to the inclusion of University candidates in returns for previous years, they not now being required to go through the Sandhurst course (1686). Has served in India, but has not noticed whether smaller men stand a campaign better than bigger men (1689-90). There is not much (if any) difference between privileged and other cadets physically (1691).

CLIVE, Lieut.-General E. H., Governor of the Royal Military College at Sandhurst (1637–52).

Examination in Literary Subjects.

Syllabus.—The standard reached by successful candidates is high enough for Sandhurst except in Euclid, and the knowledge of scales, which is required for Fortifications (1645–7). The standard of Queen's Cadets is low (1650).

Physical Examination.—There has been little change in the physical qualities of the cadets coming to Sandhurst within the last five years, for though more have entered under the standard, yet the age has been reduced (1638–9). The Officers generally in the Army are bigger men than when he joined (1640), and their physique is as good as ever it was, and good enough, so that he does not think a competitive physical examination advisable, even if practicable (1641, 1644). Testing riding-power at the entrance examination is of little value, the teaching at Sandhurst being sufficient, the cadets who have never ridden before often proving among the best riders on passing out of Sandhurst (1642-3).

Queen's Cadets.—The standard of qualification of, is rather low (1650). The standard in Euclid and scales might be raised (1651). Physically they are often small (1652).

Sandhurst, Cadets at, do four hours' headwork a-day, the rest of their time being given to riding, drill, gymnastics, &c. (1649-50). There would not be much time for the study of a foreign language, which was formerly in the course (1648). Military Geography is not taught (1650). The efficiency of the instruction suffers from the inequality of the attainments of the cadets, a privileged class of Queen's Cadets being admitted on a qualifying standard, which is rather low (1650).

COURTHOPE, Mr. W. J., Civil Service Commissioner (202–350). Has held present position since 1887 (202–3).

Age.—In spite of the reduction of age, the general standard of performance for Sandhurst is as good as ever (333).

Candidates come from all classes of school, apart from those called public schools, which it is hard to define (204). The Royal Commission of 1869–70 laid it down that it was desirable to get candidates straight from public schools (232–5). Candidates from schools do better now than those from private tutors, in Science, and also generally (253), and in Modern Languages are beginning to do better (303). As many as 600 or 700 compete at one time for about 120 places for Sandhurst (348). The proportion of success as between the schools and private tutors is shown (243, 252, 331).

Crammer.—The term as applied to private tutors is unjust (332).

Examination in literary subjects for entrance to the Army undertaken by the Civil Service Commission as ministers for the War Office (205).

Marking of examiners is revised by Civil Service Commissioners, so as to preserve uniformity of standard (266, 325); and no deductions are made, as in Indian Civil Service examinations, and as would have to be done with a system of free choice of subjects (267–71). Revision of marking by two or more examiners would increase the expense and delay the result of the examinations (322–4); and though it generally is useful, it is unnecessary in Army examinations, which are competitive, and over which the Civil Service Commissioners exercise supervision (326–9). The maximum is an ideal figure; three-fourths of the maximum is regarded as very good (334–5).

Marks.—There is an obligatory minimum in Mathematics for Woolwich (249–52), and there will be a minimum in the aggregate of Class I. introduced in connection with the abolition of the preliminary (258). It is uncertain how the requirement of a minimum would work out (301–2). 1,000 marks enough for English, even if it were to include digesting reports (300). Maximum assigned for colloquial knowledge of Modern Languages low, so as to avoid candidates having to go abroad, and because of the short time available for the subject (304–7).

Papers are set by occasional examiners, but are supervised by the Civil Service Commissioners and their permanent examiners (330).

Syllabus of Subjects is so arranged as to get candidates having a good general education (206), and meets the requirements as nearly as possible (207). Would be sorry to see any fundamental change (207, 340–2). The present classification should be retained (260). To specialize the examination, even for Woolwich, or even to give special value to English History, would dislocate the course of general education in the country, and deprive the Army of that variety of intellect which it now has the means of securing (246–7, 345); while it would also be inadvisable to have a system of free choice of an unlimited, or even limited number of subjects, in view of the youth of the candidates (272–9). Alterations made in the syllabus (which are specified) have tended to draw the candidates direct from the schools, from which the earlier schemes diverted them to the private tutors (256–7, 261–2). This has been effected without diminution, but rather with an increase, of standard of attainment (265–7). Physics might be divided into two parts: (*a*) Electricity and Magnetism, (*b*) Light, Heat and Sound (207, 237), for both Woolwich and Sandhurst (340–1), the candidates being allowed to take one only (238, 242), the subject being retained in Class II., and not put into Class I. (239). Physics is not at present a paying subject, and the standard in Chemistry is low (280–4). A candidate can get into Woolwich without a knowledge of science (213, 243), which is in the optional class (212), and, being equally marked with others in that class, might be generally chosen if it were made strictly obligatory in the Course of Instruction at Woolwich (210–11, 240–41). At present, analysis of the examination lists shows that one-half of the successful candidates for Woolwich do not take up any science; but, remembering that a certain amount of Mathematics is compulsory, and that the higher branch is taken by a large number, this is not unsatisfactory, although Woolwich supplies the scientific arms of the Service (243–6, 248–52). "Obligatory," in the entrance examinations, means that the subject so classed forms one of a limited number, and no alternative subject is allowed for it (214–17). The term might be discontinued in favour of "Class I." (259). The obligatory subjects are those which are universally taught in the schools (257). English History being optional, and equally marked with other subjects so classed, a candidate may be successful, and have no knowledge of the history of his own country (218–19). English is to be moved from Class III. to Class I. and given 1,000 marks, owing to the abolition of the preliminary (220–2, 294). English does not include Literature now, as it was found to be liable to cram (285, 349–50); it might include writing a précis or digest, though this does not form a part of the public school course (285–293, 300). English Composition a valuable subject, but requires less time than Latin; and accordingly the two should not be marked equally (295–300). English History not a very good examination subject, as it is liable to cram (310–11, 337), though it is generally taken up (336); and boys could hardly be expected to take an interest in Political History, while Military History would be valueless to the unsuccessful (346–7). Latin was not made obligatory because of the candidates' deficient knowledge of English, but because it is universally taught in public schools, from which, owing to their superior tone and discipline, the Royal Commission of 1869–70 said it was desirable to draw candidates (223–6, 232–5, 298–9). No increased value has been given to Latin of late years (227); it was put into the preliminary because it was already in Class I. (228–9), and not owing to the pressure of head masters, who were only consulted afterwards by the War Office (229–31). Latin includes Roman History and Literature (236). The results in Latin are satisfactory; it is a good subject for separating candidates (319–20); to move it to Class III. would destroy the principle on which the present scheme was founded (343). "Modern Languages" includes colloquial, to which portion it is only found advisable to assign low marks (304–9). The subject is well taken up (336). In Geometry, Euclid is generally adopted (312–13). Physical Geography and Geology can be made good subjects of general education, but they are not usually taken by candidates (315–6).

COURTHOPE, Mr. W. J., Civil Service Commissioner, *re-examined* (1892–1993 ; *see* also Appendix XXIX.)

Examination in Literary Subjects.—Does not think it would be an advantage to the schools to have three examinations in the year instead of two (1964–5); the examinations might be nearer to the end of the school term (1966–7). The results could not be got out more quickly than at present if the examination is to be as thorough (1968).

Examiners.—There are separate examiners in Greek and Latin (1914), but answers are not looked over by two examiners (1915). Their names should not be published (1970). Thirty years' experience leads the Civil Service Commissioners to believe that it is not necessary to have more than one examiner to each paper (1974).

Marking can be equitably managed by an experienced examiner without check from a fellow-examiner (1974).

Marks.—Under present scheme, it is not necessary to assign higher marks to Latin than to French or German (1902–6). A minimum in the aggregate of Class I. will be required in future, though the stress of competition already really secures this requirement (1910, 1934–6). The effect of a plucking minimum in four out of five subjects would be mischievous or nil (1937).

Papers.—Another paper in Mathematics could be added (1912–13), or the subject divided (1932); but it is not desirable generally to increase the number and length of the papers (1916). The papers in Higher Mathematics are the same for Sandhurst and Woolwich (1932). A second paper in English Composition might be added (1939–40). The papers for the qualifying candidates, *e.g.*, Queen's Cadets and Militia, are the same as for the rest of the candidates (1941–2). The responsibility for the papers rests with the Civil Service Commissioners, whose permanent examiners rectify inequalities of standard (1970–3). Questions on Literature have been inserted in Modern Languages papers as discriminating agents, and after consultation with the schools (1977–8).

Preliminary examination was abolished on the recommendation of the Civil Service Commissioners, as it was found not to be serving the purpose of weeding out candidates whose chances in the "Further" were hopeless (1986–7). It was an examination suited to the capacities of boys of 14 or 15 years old (1988–91).

Syllabus of Subjects.—The present syllabus has been devised on the lines of Sir R. Biddulph's confidential memorandum and fourth report on Education of Officers, so as to include as obligatory such subjects as are universally taught in the schools, and as optional such as, being more or less taught, would give free play to the pronounced tastes, &c., of candidates; another group being added of utility subjects not otherwise of much educational importance (1980-4, 1992–3); no complaints have been made of it; and it is to the interest of parents that the examination should thus be made to coincide with the established system of education (1983–5). Would not prefer to alter the present syllabus by grouping German with French and Latin in the obligatory class and allowing two of the three to be taken up (1892), even if Latin were given higher marks, which would practically effect no change at all (1893). No change should be made which would be a departure from the principles laid down by the Royal Commission of 1869–70 (1894–9). German is a useful subject, but is not universally taught in the schools (1900–1). Under the present scheme it is not necessary to assign higher marks to Latin than to French and German (1902–6). Dr. Percival's scheme would make the class of obligatory subjects too wide (1907–8), and the present subjects are better tests of education (1911). Obligatory means that an alternative cannot be taken to the subject so classed; but in future an aggregate minimum will be required in that class (1909–10). The present range of Mathematics was settled on the recommendation of the Woolwich authorities, but could not say whether it might include the calculus (1917–18). An English paper of a general kind instead of English Composition would lead to cram (1919). A second paper, of the nature of an abstract or précis, might be added (1939–40), but the essay is not a good subject for examination, such as Mathematics, though the subjects chosen are those suitable to boys (1922–3). English History is not a good subject of examination, though better than the Essay, but it should be retained; Physical Geography and Geology is better (1920, 1924, 1927–9). The comparative discriminating value of the subjects for Woolwich and Sandhurst is shown (1929–32, 1938). Higher Mathematics might be divided into two subjects (1932). Under a system of free choice of a wide range of subjects, "mark-hunting" would prevail, the educational value of the subjects being neglected (1957–61). The system has been tried and abandoned (1957). Has never heard of cases of boys who wished to take up languages such as Hindustani, Russian, or Arabic (1962–3, 1969). Latin was not made obligatory because of any deficiency in English shown by the candidates (1975).

Militia Candidates.—The standard of qualification is very low (1943), and gives unsatisfactory results (1954); it should be raised to 5,000 marks (1955–6).

Queen's Cadets.—About three or four get in each time (1947). The standard required for qualification is very low (1943–6), it should be raised to 4,500 marks, and then to 5,000 (1948–9), to attain which the present class would have to work harder (1950–2).

University Candidates.—The average standard of these is higher than that of the ordinary candidate (1956).

DELAVOYE, Colonel A. M., Assistant Director of Military Education (1–129).

Age, reduction of, for entrance to Sandhurst is favourable to the public schools (31).

Candidates.—Present syllabus gives good candidates (9–13, 106–7) whom it is desired to get direct from public schools, but who do not come necessarily from one class of society (45–7). Candidates for Sandhurst, owing to competition, reach a higher standard than for Woolwich, except in Mathematics (87).

Commissions are allotted according to the requirements of the Service (14–22).

Examination in Literary Subjects.

Marks.—Would require only a moderate minimum in obligatory subjects, and none in other subjects (61–3). Marks for some subjects in Classes I. and III. are being altered in consequence of the abolition of the "preliminary" (72–9).

Syllabus of Subjects.—The present syllabus for Woolwich and Sandhurst is a modification of that laid down in 1870 as a result of the Royal Commission on Military Education of 1869–70. Gives in detail the modifications made in 1872, 1876, 1878, 1885, and 1891, and points out that they have been slight (4, 12–13). University candidates have the same syllabus (5–6). The two voluntary subjects most generally combined are, for Woolwich, Higher Mathematics and German; and for Sandhurst, German and English History (7–8). Present syllabus gives good candidates (9–13, 30, 106–7, 114–16); it is designedly favourable to the public schools (31, 109–16), from which it is desired to get candidates direct (45–6, 108). Science was at a disadvantage in the syllabus, owing to the course of instruction at Woolwich, but this has been remedied (32–5, 117–22); and is at a disadvantage still as compared with Latin, one being compulsory and the other optional (123–25). Prefers an Officer to know Science rather than Latin, but latter must form a subject of examination so long as it is compulsory at school (36–9); and as a subject of examination Latin is better than Science, and it may be more useful to the unsuccessful candidates, who form the majority (40–4). Classification of some subjects as obligatory is due to the requirement that Officers ought to know those subjects for their subsequent career (48–52). Cannot say whether Latin was made obligatory owing to pressure from public schools (53–6). Obligatory does not mean that a minimum mark in any subject so classified must be obtained; such a plan would deprive the Army of a boy who, though weak in one subject, was remarkably strong in others; but only that another subject cannot be taken in lieu of it (57–60), and the stress of competition forces boys to take all obligatory subjects (61); so that really there are only two classes—one obligatory the other optional (126). Would put Classes I. and III. together, leaving Latin as obligatory (66–8). The absence of a restriction as to choice of optional subjects would put too much work on candidates, even if a minimum were required in each (127–9). Owing to abolition of the preliminary, a readjustment of Classes I. and III. only is to come into force at once (68–71). Science and précis writing not obligatory at Sandhurst (65, 81–3). English Literature was taken out of the syllabus owing to its tendency to be crammed (80). English History is an optional subject (84–5). Languages cannot be learned so well at school as abroad; but Languages are taught better than Science, though good science candidates do come straight from schools, and the standard in Science is not so high as to require elaborate plant, &c. (86, 88–91). Linguistic rather than scientific knowledge required for the Line (92, 96–7), and is forthcoming (100).

Professional knowledge in the Army higher now than 15 years ago, though general knowledge is still sometimes deficient; mainly, perhaps, among those who have not been through Sandhurst (93–4, 102–6).

Dick, Inspector-General James N., C.B., R.N., Director-General of the Medical Department of the Navy (1692–1719).

Physical Examination in the Navy.—Candidates for naval cadetships are examined medically before the competitive examination, which would be between the ages of 13 and 14½, and are kept under constant supervision on the "Britannia" (1694–6, 1712). Parents and guardians are warned beforehand as to the requirements, and are urged to have the candidates primarily examined by their family doctor, and in this way the Medical Board is saved from rejecting a certain number of candidates (1709–10). At the last examination nearly 200 came up, the medical examination taking eight days (1711). Believes the examination for the Navy to be stricter than for the Army, but only knows that for the latter in a general way (1697). The naval cadets being so young, the examination is necessarily very strict, though, for the same reason, no hard and fast standard of measurements can be laid down; but certain regulations are stringently adhered to, the Medical Board, with the approval of the Admiralty, exercising a general discretion (1698–1701). Candidates are not allowed to enter at their own risk on the chance of subsequently developing up to the required standard (1713). The examination for the Marines is the same as for the Army, except that the standard of height is 5 feet 5 inches, and there is no standard of chest measurement (1699, 1702). Naval cadets are required to have full normal eyesight (1702). Thinks a competitive physical examination would be of practical value, as it would bring in some well-developed candidates who are now unsuccessful; but the marks should be low, and the subjects should not be of an athletic kind, so as to prevent overtraining (1704, 1707–8). Has had no experience of such a competition in the Navy, and understands that there are almost insuperable difficulties in the way (1703, 1705). Moderate-sized men stand campaigning better than very big men (1706). Naval cadets are a picked set of men, and do not often break down in health between 20 and 30 years of age, except from fever or acute disease (1714). The life in the "Britannia" is healthy, and opportunities of athletics and amusements on shore are given (1715–18). The class who enter the Service now are about the same as formerly, but it is noticeable that short-sightedness has increased in the last 20 years, and the necessary regulations on that account lose the Navy some well-educated candidates (1718–19).

Durnford, W., M.A. (351–464), Master of Army Class at Eton.

Age for entrance.—Agrees with recent reduction of maximum limit to 19 (354–7).

Army Class at Eton.—Modern languages, History and Geography well taught at Eton (367–370); Latin in Army class below the standard of the rest of the school; Mathematics compares more favourably (457–9). Boys of Army class mix freely, out of school, with other boys (415–6), otherwise the class is separate (384–6). Teaches Latin, Greek, and some English history, supervises teaching of the class generally (384–6). Sends more boys up for Sandhurst than for Woolwich (387), but total numbers fairly constant (358–9); some go up for the Army not from the Army class (417). The classes for Army candidates smaller than in rest of the school, and more individual tuition can be given to the boys (419–20).

Examination in Literary Subjects.

Marking fair enough generally, though Science is too highly marked sometimes (394–9). The marks and papers in each subject might be profitably arranged and supervised by more than one examiner (439–446). Marking for History is low (403).

Papers in French or German should not contain questions in history and literature, except on specified periods (375–9). More papers or more questions should be set in Mathematics for Sandhurst (420), and also for Woolwich (447). Papers in English history should be more restricted (460); would not add to the grammatical questions set as an alternative to composition papers (463–4).

Syllabus of Subjects.—Candidates should not be required to take up more than four main subjects, which should be Mathematics, Latin, French or German, and a Science or another Modern Language or English history or Greek (361–2). Would prefer not to allow a free choice among all subjects (454–6); would not substitute English, nor even German for Latin, which is a better subject of education, and the removal of which would disorganize the teaching at schools (363–6). Mathematics, Latin and Modern Language, a good basis of education for other professions (371–2). Has not thought of the value of substituting English for Latin, and making the fourth subject a branch of Science (373). English, consisting of composition and a review of a book, a valuable test; preparation of special books leads to cram (381–3). Has had no experience of teaching "digests" (382). Would allow two scientific subjects, but neither to be in substitution of Latin, which should be obligatory for Woolwich as well as for Sandhurst; that is, candidates should be obliged to take it up as one of a limited number of subjects (389–93, 448); would do nothing to exclude Latin (403, 409); does not wish Science to be discouraged; at Eton it is taken up by an increasing number (400–2). Sees no absolute objection to allowing free choice of four or five subjects, marks above a certain fixed percentage only to count, though preference for Latin and Mathematics would lead him to give a higher maximum mark to these (406–414). Whatever the syllabus, the schools and tutors must make the best of it, and adapt themselves to the requirements (380, 404–5).

Physical Examination.—Impossible to make this competitive (421). Allotting marks for riding would be unfair, though riding power is an additional advantage for the Army (422–5). Marking for speed in running an unwise test for boys (426). Difficult to test power of endurance, and examination, if practicable, must be very careful (427–9, 432). Would not object to such examination if the marks were low (438). Sometimes physically inferior boys are successful, but medical test is now more severe (430–2). Weakly boys at Eton are dissuaded from trying for the Army. Colour blindness rare (433–6).

GASTEEN, Surgeon-Lieut.-Colonel W. C., M.B., M.S., Medical Officer at the Royal Military Academy, Woolwich (1395–1417). Has been at the Academy since 1890; before then served at Enniskillen and in Cyprus (1395–7).

Physical Examination.—A considerable number of cadets on entrance to Woolwich are not of sufficiently good physique; they show signs of having had too little outdoor exercise, and of having been intellectually overworked (1398–1404, 1416). They improve very much while at Woolwich (1399, 1405–6, 1417). Would like to see a competitive physical examination on entrance, the details of which could be worked out by a committee of medical experts (1407–9). Would make the medical examination more searching than it is at present, and would require the minimum chest measurement to vary with the height (1410–14); and would accept or reject a candidate on his measurements at the time of the examination (1415).

GRANT, Lieut.-General R., C.B., R.E., Inspector-General of Fortifications, &c. (1320–76).

Age.—Difficulty of getting Officers for Royal Engineers by open competition is a question of age (1325).

Candidates for Woolwich.—The majority come from public schools, and some from private tutors (1321). Some years ago 20 commissions were given in the Royal Engineers to men successful at an open competition who were not required to go through Woolwich. They were rather above the age at which the Woolwich cadets are ordinarily commissioned, and had on the whole a higher standard of work and more knowledge such as is required in the Royal Engineers. They came principally from Coopers Hill, the Royal Military College, Kingston, Canada, and Trinity College, Dublin (1322–4). This system could not always be followed without previous notice (1325), and is not preferable to the present (1374); but if it were not for the desirability of Officers of Royal Artillery and Royal Engineers being closely connected in their early career it would be wiser to have an open competition for the Royal Engineers (1374–6). Would prefer to get candidates from public schools, because their tone is better, but crammers teach better than the schools (1376).

Examination in Literary Subjects.

Standard of work at public schools rather low; and a high literary examination and high qualification alone would not give very good results (1373).

Syllabus of Subjects.—Cadets on entry to Woolwich usually deficient in Mathematics, Drawing, and Science (1326); and after the course at Woolwich the deficiency to a large extent remains (1337–8). Officers of Royal Engineers, though not those of other branches, require Mathematics of a high class for Astronomy, &c. (1329–31); would therefore like to see, in the entrance examination, the Higher Mathematics as a voluntary subject carried further to include the calculus, and Physics up to a certain point made compulsory (1332–4). Would not divide Higher Mathematics into two subjects with marks of 2,000 each, but would allot a total of 3,000 to the subject, thereby encouraging the good mathematician, and leaving him a chance of also displaying knowledge of another of the subjects in the voluntary class (1335–7). Would keep the present classification of subjects, obligatory and optional, the former being Mathematics, French or German,

English (including Composition and History), Geometrical Drawing (including Descriptive Geometry), and Physics (including Electricity and Heat); and the latter covering the other subjects now in Class II., with the addition of Latin, and excluding Chemistry, which, with Freehand Drawing, might go to Class III. (1339–42). This syllabus would be useful for the Artillery as well as Engineers (1342). A knowledge of Electricity at the entrance examination is desirable, though not absolutely necessary, and more required than Chemistry, a knowledge of which is not necessary to an Officer (1343–5). Would not make German compulsory; has no particular choice as to French and German (1346–8). For the Army generally the entrance examination should be a test of general intelligence, but for Artillery and Engineers it should be of a more special character (1349–52). Physical Geography not a necessity; as a rule, Officers not deficient in knowledge of Geography (1353–5). At entrance, a knowledge of English generally only required; an Officer may be left to learn to write reports when in the Service (1356–7).

Physical Examination.—Officers show a fair average of physical ability, and are better than they were; but would like to see marks given at the entrance examination for physical development, &c., the present medical test not going as far as he would like (1359–62, 1372). Is not prepared to allot the marks, but would include in the examination an anthropometric test, riding, running, fencing, and shooting (1363–8)—for Woolwich and Sandhurst alike (1364). An Officer must be equal to all the calls of active service (1369, 1371). Too much stress is laid upon perfect sight of both eyes (1369–70).

GURNEY, Rev. H. P., Private Tutor (1165-1253*b*), since 1870 (1165-6). Is in partnership with Mr. Wren, but their views on the subject of Army examinations do not always coincide (1221-3).

Age for Woolwich should be within lower limits than for Sandhurst (1222).

Candidates should be allowed to compete three times (1227-8). Militia candidates have generally failed for Woolwich or Sandhurst: they are not physically superior to the cadets at either (1253*a* and *b*).

Classes, his, contain candidates for Sandhurst and Woolwich in about equal numbers (1236), and a few Militia candidates (1253). The tuition is governed by the nature of the examination, and the necessity of being successful in it (1238). The Woolwich candidates do not take scientific subjects generally (1239).

Examination in Literary Subjects.

Examiners (*see* Papers).

Marks.—Would assign marks to subjects in obligatory class in proportion to their difficulty and value, and would have no minimum, except perhaps in Mathematics (1169-70). Would mark equally all subjects in optional list (1180).

Papers should bear the names of the examiner (1234-5), and there should be two examiners in each subject (1245-7).

Preliminary, regrets abolition of, which is a good test of elementary subjects (1226).

Syllabus of Subjects.—Present syllabus more than a boy can do justice to (1167, 1183, 1230). The syllabus should be composed of subjects likely to be useful in the Army to the successful candidates, but not of strictly professional subjects (1218-20), and should be arranged so as to provide the Army with the best Officers (1248). Subjects should be weighed not counted (1168). Would require Elementary Mathematics (not making Arithmetic prominent), simple grammatical English prose, Freehand, and Geometrical Drawing, French, and Chemistry or Physics, or Geography of an extended kind, compulsory (1168), *i.e.*, as subjects to which no alternative would be allowed (1170-3), and there should be two voluntary subjects out of the present list, in which greater choice of languages should be given, and Geography allowed as alternative to the Science in Class I. (1173-5, 1178). If the examination be merely a means of selecting candidates, would discard Freehand and Geometrical Drawing, and would require only Latin, English, Mathematics, and one science subject in Class I. (1185, 1187). It is preferable to indicate to boys the kind of study which will be useful to them, and a wide range with unfettered choice, therefore, inadvisable (1188); the syllabus he indicates is the most useful, even to the majority who fail (1190, 1249-50). Latin has a high educational value, but cannot have the time given to it to be of much use in this respect by Army candidates, who have seven or eight subjects (1175, 1813), and it is of no value in the subsequent course at Woolwich or Sandhurst; nor is English history (1240, 1243). If it were made optional there would be more chance of candidates, for Woolwich certainly, taking up Science, which would be more useful to them (1237-40). Science is a better subject educationally if the time at the students' disposal is limited, and it is as well, and sometimes better, taught in schools (1183-5); and it is a good subject for separating candidates (1185-6, 1195-6). Chemistry a comparatively easy subject, and as a means of discriminating boys' capacities, Physics is better (1197-8). English history and Literature are bad subjects educationally (1223). English composition is neglected at schools; for this examination it should take the form of the simplest English prose (1224-5). Arithmetic ought not to come into the further examination unless there is no preliminary, in which it more properly should be placed (1229-33). Knowledge of Mathematics is essential for an Officer, though often some clever men are incapable of acquiring it (1251-2).

Militia.—Candidates have generally failed for Woolwich or Sandhurst. They are not physically superior to the others (1253*a* and *b*). A voluntary literary or scientific subject should be allowed in their competitive examination (1252).

Physical Examination.—A competitive examination is not necessary, as no complaints seem to be made of the material now obtained, and athletics at school need no encouragement, and if marked for would only become further subjects of cram. The medical qualifying examination, if necessary, might be made stricter (1199-1203, 1206-8, 1211), up to what he believes to be the standard for the Navy (1203). Has had no boys rejected for short sight, as he deters such from choosing the Army as a career (1204-5). Riding would not be a fair subject, as unduly favouring the sons of rich persons and those brought up in the country, and ordinary riding being different from military riding (1209-10); but it would be a better test than running and jumping (1211). If such a competitive examination be enforced it should apply to all, but he does not think the results would satisfy the public (1211-14, 1217). Some results in recent similar examinations for the Civil and Forest Services of India have not been satisfactory (1214-16).

JAMES, Captain W. H., *late* R.E. Private Tutor (574–673; *see* also Appendix No. XI.).

Classes contain the average boy (585), and very few who are not public school boys (629–30).

Education ordinary, for the Army would be altered by his proposals (623).

Examinations should be held at one centre (661–4), and in declaring results would like place of origin of candidates shown (669–70).

Examination in Literary Subjects.

Marking and Marks: would require a minimum proportionate to the total assigned to each subject, say, $\frac{1}{5}$th or $\frac{1}{6}$th in all subjects (579-584, 588 and 590), but would not count only these marks in excess of the minimum (586–7); would mark all subjects in order of their importance to the Officer in his career, *e.g.*, would give 3,000 to Mathematics, 2,500 to French or German, and 2,000 to Latin, &c. (591, 595–6, 598). Marking for Freehand Drawing has been unsatisfactory (614–18). Marks for physical test could not be arranged (654). Marking should not be left to one examiner (658).

Papers in Modern Languages should not contain questions in History and Literature (607); more papers should be set in Higher Mathematics for Woolwich and Sandhurst, and the marks rearranged (631-3). Papers should be supervised by more than one examiner, and should have the examiners' names printed on them (658–60, 665, and 671–3).

Syllabus of Subjects should be arranged from a utilitarian standpoint, in view of the subsequent destination of the examinee, but should be wide, so as not to insist upon all the candidates conforming to the same pattern (577, 626). Has not considered, in drawing up his proposals, the position of the unsuccessful, though the subjects he suggests would be more useful to them than any others (666-8). Whatever the Army requirements the schools and tutors will teach up to them (627–8). Would make Mathematics, a Foreign Language (French or German), Geometrical Drawing, Geography, and English History, obligatory, *i.e.*, with a minimum, though a low one, as being subjects which an Officer ought to know (578–84). Is indifferent to the position of Latin in the syllabus, except that if made obligatory the minimum required should be low (584). Would limit the number of subjects (587, 589), but in addition to the five obligatory, would allow choice of two others from a very wide field, and perhaps three, the third to be a Language or a Science (590, 605-6). Is anxious that a candidate should know two languages (593-4), and in Class II. would give choice of every important European language (598). English composition should be in Class I., *i.e.*, obligatory, under English History (598). Would put Greek in Class II. (598). Would divide Physics into two, making electricity and magnetism one subject, and light and heat another (603), and would give as alternative Science subjects—Mineralogy, Geology and Physiography, Zoology, and Botany (618). Languages more easily learned by the young than Science, and more necessary for the Officer (603*a*, 604, and 624-5). Geography should be political (610). English History should be the general history since the Revolution, no special period, and no European history need be included (611-3). Would not make Freehand Drawing obligatory (614). Geometrical Drawing should include Descriptive Geometry (618-20). Syllabus, as regards Higher Mathematics, should be remodelled, and the course in that subject extended (632-8). Would like decision as to syllabus, which may be arrived at, to be fairly permanent (673).

Militia candidates, the qualifying minimum mark should be raised (581-4).

Physical Examination should be limited to the requirement, that candidates should reach a given standard (639-40, 652, 654, 655). Unfair to exact severe walking tests of boys, walking a matter of practice (641-2, 656). No athletic test or physical competition possible or desirable (643-4, 649*a*–654). Candidates for Army have improved and certainly not deteriorated in physique, and undesirable boys are not let into Sandhurst (644-8). It might be desirable to test the physical powers of those within a certain number of places of the line dividing successful from unsuccessful, giving marks (649). Height above the average, even when joined with a corresponding chest measurement not necessarily advantageous for an Officer, and no criterion of power of endurance (649*a*–652). A candidate might be required, in addition to reaching a standard of chest capacity and eyesight, to walk 15 miles without hurting himself (653).

JAMESON, Surgeon-Major-General J., M.D., Professional Assistant to the Director-General of the Army Medical Department (1776-1830; *see* also Appendix XVIII.).

Physical Examination.—The Army generally is not of an inferior type physically to what it was some years ago (1817). The average physical development of the candidates for the Army, shown by the measurements taken, is higher than those shown in the tables, published by the Anthropometical Society, though the maxima are lower (1778-80). Thinks the practice of admitting at their own risk candidates who may be under the standard a good one (1781). In estimating physical development, the chief point to be looked to is the "physical equivalent," or correlation of height, weight, &c. (1782-4); as, for example, is done in the American Army (1823). To test thoroughly for the physical equivalent would take 10 minutes in each case (1821-2). In the instructions sent to intending candidates, the chief points to be observed are indicated, and the medical test subsequently made is as good as it can be, except that the test as to sight is not very strict, and that as to teeth vague (1785-6). Would not require absolutely normal sight, owing to the badness of the light in this country; would demand one-fourth without spectacles, and in both eyes, instead of one-sixth as at present (1819-20). Thinks that for the present minimum standard of chest measurement, a standard of average pulmonary expansion should be substituted (1787-9). A standard of chest measurement should vary with the height; an increase of half an inch to the present standard, which is sufficiently high, would disqualify many (1808-12) Generally in his earlier years the Officer is better developed than the private (1812-15). Does not know of any games or exercises which would be reliable tests of fitness, but thinks marks might be given, to the extent of 10 per cent. of those allotted to intellectual attainments, for the "physical equivalent" (1790-3), a number of marks being assigned to the typical standard, and candidates losing marks in proportion as they diverge from that standard

(1825-8); though difficulty would arise from the element of "race" (1794-7). But would not give marks to the candidates for competition in exercises, as against one another (1816). The medical test does not include "hand-grip," which is not altogether a reliable test, as it may be crammed up to, an objection which applies to most exercises considered as tests of physical power (1798–1801). Nor is a test applied, ordinarily, for albuminuria (1829-30). Officers in their first years of service suffer in tropical climates, as all young men do, not especially from want of care, but from youth; they do not bear the hotter climates less well than the private soldiers, the most fatal diseases being the result of exposure to filth germs which abound in every cantonment in India (1802–7). Typhoid fever is increasing in India, and consequently service in that country is not borne as well now as formerly (1818-9).

Moriarty, Mr. L. L., Army Class Master, Harrow (762–884).

Age for Entrance.—Agrees with the reduction to 19 for Sandhurst, but would not like to see the maximum limit made the same as for Woolwich (775–6).

Army Class.—Formed in 1890 (763). Boys enter it on joining the modern remove form, *i.e.*, about 15 or 16 (764–6), it is not the same as the modern side (767–770); consists of about 70 boys, who are divided for subjects into small classes and thus get more special and individual tuition than in the rest of the school (771–3). Boys in Army class not the cleverest in the school (825). There is an extra fee for the Army class (774). Teaches Army class everything except Mathematics and Science and supervises with a mathematical colleague the teaching generally (778); teaches French and German with assistance from Foreign teachers (797). Standard imposed in the examination is the one aimed at in the teaching of the Army class (854).

Examinations. — Preliminary, regrets abolition of (814, 861). The preliminary was a better stimulus than a school examination to boys to commence working early for the Army (861–6, 870–5). The preliminary was taken by Harrow boys generally, at the age of about 15, and the subjects were not necessarily forgotten before the further was reached (867–8).

Examination in Literary Subjects, the date of, might be altered so as to coincide more nearly with the close of the school term (869).

Marking and Marks.—1,000 marks too much for English composition, if obligatory only 500 should be given (781–6, 789). Marks for colloquial part of examination in Modern Languages should be raised and added to present total for the subject (792–6). Marking for Greek and History low (798–800). Would not impose a plucking minimum in obligatory subjects, except, perhaps, in Mathematics for Woolwich (810, 813, 856). Marks assigned, if unequal, amongst optional subjects determine candidate's choice (817–8).

Papers in Mathematics should be increased (777, 851–3); in French and German, should not contain questions in History and Literature (793–44). Papers in History should be set on a special period as well as on the general subject (807). Approves of the present History papers (820). Indifferent to the supervision of papers by more than one examiner (827–8). And thinks papers should not bear the examiner's name (881–4).

Syllabus of Subjects.—Agrees with Mathematics, Latin, one Modern Language, English and Geometrical and Freehand Drawing being obligatory and the rest optional (777, 790, 810, 877–8), though four is as many as can be required as main obligatory subjects (859–60). Would not prefer a system by which Mathematics alone should be obligatory, and a free choice of a limited number of other subjects allowed (802–4). Some clever boys are incapable of learning Mathematics (805–6); most can do Geometrical Drawing (876). If an open system were adopted all subjects should be marked equally, with the exception of English and Drawing, unless it were desired to emphasize the value of Modern Languages, which should then be marked higher (808–9, 811). If subjects are marked unequally, candidates will tend to disregard those with lowest marks (817–8). Would not substitute a Modern Language for Latin in Class I. (780, 791). Latin should be retained as it is an almost universal subject of education, and is useful (880). In Modern Languages more attention should be paid to a colloquial knowledge (792–7). Would not prefer Physics as an alternative to Latin, but would not object to see Greek eliminated (798). English history, difficult to teach, but not easily crammed (799–801). A general knowledge of the whole of English history, and a special knowledge of a particular period should be required under English history (821–2, 824–5). European history could not be expected of boys (823–4). Geography might be made obligatory, sharing the total marks assigned to English, but it will be crammed (855–8). Whatever changes are made would like permanency (879).

Physical Examination.—Would object *in toto* to a competitive physical examination, ordinary school athletics give satisfactory development; an examination in gymnastics or athletics would only mean another subject of cram and would be impossible to mark for (829–30, 843–4, 846–8). Would not give marks for mere physical development, and would think it unfair to subject only those within a limited range of the dividing line between successful and unsuccessful to an additional physical competitive test (831–4), or to mark for riding (839–40). The most important quality for the Army, power of decision and force of character, cannot be tested (835). No deterioration in physique noticeable amongst candidates for the Army (836–7). Would deter weakly boys from trying for the Army (838). Gymnastics not attended to much by cricket and football players, and proficiency therein gives no prestige such a s being in the eleven (849–50).

PENDLEBURY, Mr. C., Master of the Army Class at St. Paul's School (465–573).

Age for entrance to both Sandhurst and Woolwich should be within the same limits, viz., from 16 to 18 (508).

Army Class contains one-tenth of the boys in the school, *i.e.*, about 60, and only candidates for Woolwich belong to it, the few candidates for Sandhurst remaining on the classical side (468–71), and it is on the whole successful (472). Teaches mathematics, and supervises generally the other subjects (480, 514). The class works in three divisions for Mathematics, and is re-divided for other subjects, all being taught separately from the rest of the school (503–4), which contains the abler boys, who, both mathematical and classical, go to the Universities (505–7). French spoken in Army class, and taught as well there as in the rest of the school (526–8). Army class represents boys of best physique in the school (552).

Examination.—Would like a common examination for Sandhurst and Woolwich (508–10).

Examination in Literary Subjects.

Marking in Mathematics hardly requires supervision of two examiners, but in Chemistry a rare instance has occurred, showing capricious marking by one examiner (485–90). Physical subjects fairly marked (491, 521–2). Would not prefer to take off a percentage of marks in any subject (499–502, 566). Marks for Freehand Drawing should be raised from 500 to 1,000 (512–13). Marking for History, Geography and Geology apt to be capricious (519). Could not say whether marks for physical exercises would cover wide range, and would not make them more than 500 (537–40). Is content with marks at present assigned to each subject (560–1). Would not like to see a minimum in any subject except Mathematics (572).

Papers.—Questions set in Mathematics generally suitable (484).

Syllabus of Subjects.—Is content with three obligatory subjects (Mathematics, Latin and Modern language) plus one scientific subject (516). Geometrical Drawing, to include Descriptive Geometry, might be added (562, 567, 571). Would like to see in Latin Cæsar set as a fixed book (473–5). Latin should remain an obligatory subject as it is valuable as mental training, and is an important part of the general education of schools (476–8). Mathematics ought not to include both arithmetic, and statics and dynamics, the latter should be in Class II., under Higher Mathematics (481–3). Physics might be separated into two subjects, of which one only should be taken. Would like to see Physics put into Class I. and made obligatory, in the sense that it must be taken up as one of a limited number of subjects (492–5). Physics a better subject of education than Chemistry (496–8). Would not like to see History, Geography, or Geology obligatory subjects, as they are easily crammed, and not good subjects of examination (515–520 and 525). Freehand Drawing a useful subject for the Army, but should be left in Class III. (513, 571). Geometrical Drawing should include Descriptive Geometry, and be placed in Class I., *i.e.*, made obligatory (522–4, 562, 567, 571). If the number of obligatory subjects were increased would reduce the choice of optional subjects from two to one (569–70).

Physical Examination.—The existing medical examination answers its special purpose (533), but would like to see also an examination introduced to consist preferably of active forms of exercise, *e.g.*, gymnastics, fencing, boxing, riding, running and jumping, not to carry high marks (529–30, 532, 534, 558). The riding might be difficult to deal with (531). This examination should be for all candidates, and not simply for those near the line which separates successful from unsuccessful, who often pass higher out of the Academy than those who pass in at the top of the list (536). Cannot say whether the marks of the candidates in such an examination would extend over a wide range (538–9). No more than a maximum of 500 marks should be given (540). Has had no experience of such an examination, probably there would be a tendency to give most marks for neatness, upon which too high a value should not be placed (543–6). A wide test would not attract "record-makers" to the exclusion of allround healthy boys (547). Candidates have not deteriorated in physique, and those from St. Paul's are up to, and many above, the average, the failures being mainly due to weak sight never to deficient chest measurement (548–553). Athletics a matter of special instruction, and necessary to boys working their brains. All at St. Paul's, except the top boys, undergo gymnastic instruction (555–7).

PERCIVAL, Rev. J., LL.D., Head-Master of Rugby (1486–1587).

Candidates should generally come direct from good schools (1497, 1501).

Army Class exists at most schools (1498). At Rugby it consists of about 45 boys (1488); majority go to Sandhurst, some having tried previously for Woolwich (1489). Boys are not allowed to join the Army Class until they have reached the fifth form, either on the classical or modern side (1490), and they generally remain there two or three years (1499). All have a knowledge of Latin (1491–2). Most boys in the Army Class reach the Army eventually (1497). Army Classes at schools can compete with any of the private tutors (1497).

Examination in Literary Subjects.

Examiners (*see* Papers).

Marking.—Has not tried the "range" system of marking, and would not trust every examiner to carry it out; but some plan should be adopted to secure uniformity of standard (1543–4). As a rule, teachers are satisfied with the results, though sometimes there is occasion for grumbling (1545–7), as at present, in Mathematics (1547). It should be understood that marking is liable to be supervised (1586).

Marks.—Would not give high marks in physical competitive examination (1503). Would require a minimum in four out of five obligatory subjects (1521–2), but would leave the maximum assigned, as at present (1536).

Papers.—The distinction between Elementary and Advanced Mathematics not sufficiently observed in setting Mathematical papers (1547–8, 1582–3). Is not prepared to ask that alternative questions be set (1549–50). Papers in Modern Languages should not include Literature questions (1584). All papers should be set by two examiners and supervised by a third (1586–7).

Syllabus of Subjects should be such (1) that a candidate who fails should not suffer from having given attention to those subjects to which special weight is attached (1496); (2) that boys should be encouraged to come direct from good schools (1497); and (3) that it should lead up and be preliminary to the course of study at Sandhurst and Woolwich (1518). Latin is not necessary for an Officer (1523); if made optional it would probably be retained at Rugby as obligatory, though elsewhere, if made alternative with German, the latter would be taken by some (1492–4). Would be sorry to see a tendency to drive Latin out of schools (1495). Science subjects for entrance to Woolwich should be more weighted (1500, 1538), and should also be in the syllabus for Sandhurst (1501, 1567). Has not had experience in examining in Science, but believes it to be a good subject of examination (1540–2). The schools generally can teach up to a higher standard in Science for Woolwich (1518–19), and most schools have got as far as making provision for Science teaching (1568–70). The voluntary subjects should be lessened rather than enlarged (1520), being made up of an advanced study of any of the obligatory subjects, together with English History, including the literature of a specified period, and Greek, or some other subject (1525–6); and the obligatory should be Mathematics, Latin, French, German, and a special portion of Science; English and Geometrical Drawing being left as at present (1520). Out of five obligatory subjects, a candidate should be required to attain a given standard in not less than four (1521–2). Prefers this plan to an open system, coupled with a rule that only marks above a certain minimum should count. Such a system is incompatible with a good school curriculum, would be disastrous to the small schools, and would increase the difficulty of making the examinations just (1524, 1527–34). Would not make the Woolwich examination more severe, but more special, as being preliminary to the course of instruction there, some Elementary Science being required both for Artillery and Engineers (1535, 1538–9). Does not think it too much to require a elementary knowledge of three languages (1538). The calculus should be included in Higher Mathematics for Woolwich (1551). Would not make English History compulsory; it is liable to cram, and is not a good subject for testing more than memory and style (1553, 1558–61). It might be included in the course at Woolwich and Sandhurst (1560), as also might Geography (1576–9), which it is important for an Officer to know, but which should be included, if at all, in a preliminary examination (1571–81). Would not prefer to alter his obligatory list by inserting English and Geometrical Drawing, and allowing a choice of two out of French, German, and Latin (1553–7). This could be undertaken by the schools, though he is not certain how it would affect the smaller schools (1562–6).

Physical Examination should be competitive, and in addition to the medical examination, which he has no reason to think is wanting in strictness (1502–4). This would encourage candidates coming direct from schools (1501), and would secure some of the best men who now fail (1509), generally a more robust class (1514). Physical and medical examinations should be conducted after the literary examination (1503), and the former might be restricted to those candidates within a certain range of the line dividing successful from unsuccessful in the literary (1503, 1510). The conduct and subjects of this competition should be left to military Officers and medical men (1503, 1506). Has never heard of any similar system (1505). The schools could certify as to their candidates' position in the cricket field, &c., but could not give marks for such subjects so as to satisfy the public (1508–9). Has heard no complaints of present class of Officer, and has had good reports of those at Sandhurst (1511–12). From point of view of schools, no stimulus to athletics is required (1513). A competition in riding might be objected to as favouring the rich, or the boy bred in the country, but riding-power is none the less valuable; an alternative might be devised (1515–17).

PHILLPOTTS, Mr. J. S., Head Master of Bedford Grammar School (1749-1775).

Army class exists at Bedford, which is a public school of about 800 boys (1762-4). Boys must be in one of the top three forms before admission to the Army class (1765). The class is successful (1766).

Examination in Literary Subjects.

Examiners.—There should be a revising board of examiners, to secure uniformity of standard amongst the various subjects (1767).

Marking.—English Composition a difficult subject to mark (1754). Marking in Mathematics has been unsatisfactory (1760). Marking should be up to a uniform standard amongst the various subjects (1767).

Marks.—Would require no aggregate and no minimum in Class I. (1750). Marks for Chemistry should be increased, the larger proportion being given to the theoretical portion of the subject (1754-5). Does not know how the marks for Chemistry, &c., are divided between the theoretical and practical parts of the examination, but Practical Chemistry should have a higher proportion of the total than Practical Physics (1759). Would not give higher marks to the colloquial knowledge of Modern Languages (1756). Marks for Spelling should be high enough to secure a good standard (1760).

Papers.—More should be set in Mathematics (1760).

Syllabus of Subjects.—Does not wish the present Class I. subjects altered (1750-1). Would not prefer an open system or wide range to the present classification into obligatory and optional (1752-3). Science should not be made obligatory at present, and not so in addition to Mathematics (1751). Chemistry is liable to be neglected if marks are not assigned to it more in proportion to the time it occupies (1754). Colloquial knowledge of Modern Languages cannot well be tested at the entrance examinations; its study should be encouraged at Woolwich and Sandhurst, or while candidates are waiting for commissions (1756-7). Does not wish to encourage Physics more than at present (1758). Questions in Literature in Modern Languages lead to cram (1759). In Mathematics more papers should be set (1760). Good Spelling should be secured by giving high marks for it (1760). Geography is not a good subject, as it is soon acquired, and its presence in the Army syllabus makes it difficult for a boy who has tried and failed for the Army to pass to another career, *e.g.*, the University (1767).

Physical Examination.—A competitive physical examination seems to be desirable, if practicable. Care should be taken to avoid giving marks to subjects which will unduly favour certain classes, *e.g.*, riding, or which are subject to cram, *e.g.*, gymnastics. The subjects should be those which are a test of power of decision, which can be tested even in boys of 17 or 18 (1768-9, 1774), and should be various (1770). Is aware that no complaint is now made of the class of Officer obtained, but is not certain that the best available is secured (1772-3). Would give only low marks, such as will turn a doubtful scale, in favour of those better physically developed (1775).

SCOONES,* Mr. W. B., Private Tutor (1006–1164). Has been Private Tutor for last 25 years, and during that time passed about 150 Officers into the Army (1006–8). Prepares candidates for Civil Service more than for Army, and for Sandhurst more than for Woolwich (1061–2).

Age.—Thinks reduction of limit of age for Sandhurst a mistake (1108–9).

Candidates for the Army are intellectually inferior to those for other professions, but they are also younger (1108); are sometimes athletes and nothing else (1109–10).

Examination in Literary Subjects.

Examiners (*see* Papers).

Marking. — Geography difficult to score in (1020–1). Marking in Freehand Drawing has not attracted his attention (1146). The standard of marking varies constantly, but the general results are satisfactory and do not show the necessity of supervising the marking by more than one examiner (1147–58), except so far as may ensure uniformity of standard from time to time (1159–60).

Marks.—2,000 should be given to Geography (1016–7), 500 not enough (1018–23). 1,000 marks perhaps excessive for English Essay (1129–31). Under an open system all subjects should have equal marks assigned to them (1033, 1039–43). 200 marks not enough for "colloquial" in Modern Languages (1121–7). 2,000 for Physics not too much (1163).

Papers in Modern Languages should contain Literature questions (1125). Papers under an open system should be equalized so that each should represent a given amount of work, there being a uniform standard in all subjects (1040–9). The papers generally are good and sound (1153), but it might be advantageous to have them submitted to a permanent Board, with a view to ensuring uniformity of standard from year to year (1159–60).

Syllabus of Subjects.—Object of syllabus should be to get the best educated men, and authorities should not consider the men who fail (1026). Geography should be obligatory, *i.e.*, put into Class I. (1015–7), and should include Military Geography (1024). It is a subject of examination for the Foreign Office and Diplomatic Services (1027); Foreign Office candidates are four or five years older than those for the Army, but any young man can learn Geography (1028–9). Would not like to see Geography replace Latin, which should be obligatory (1030–1), but would prefer an open system instead of a classification of obligatory and optional subjects, the number of subjects being restricted but the range of choice being wide, all subjects being marked equally and the papers equalized (1032–3, 1039–44, 1059–60). If Latin and Mathematics remain obligatory three optional subjects in addition should be allowed out of a wide list, which should include Geometrical Drawing and Essay as two subjects (1050). If ordinary public-school curriculum is to be considered, Latin and Mathematics should remain obligatory (1033, 1051–2), though perhaps in any case, looking to their educational value, most candidates would take them up (1034, 1036–8), or at least one of them, and certainly the first portion of the mathematical subject (1053–4). In compulsory Mathematics would not expect all candidates to take up Algebra or Euclid, and Trigonometry not necessary for Sandhurst (1055–6, 1058). Some Mathematics required in order to make a good geometrical draughtsman (1057). Spelling of some few with brains is bad, but generally only duffers cannot spell at all (1111–5). English Essay should be obligatory; to be a test of general intelligence and to include a précis of military despatches, but hardly a review of a pamphlet or article (1128–34). English history should be limited, and cover only the period after the sixteenth century, with special attention to military matters, which should not be left till the Sandhurst Course is reached; the general period is now too wide (1135–8). Would make the range in Science subjects wide, but has had no experience in this, as very few of his candidates have taken up Science (1139–41). Would keep Freehand Drawing among the subjects which all ought to take up (1142–6). Physics should be kept as one subject (1164).

French and German Armies.—Has had no actual experience of the system of officering these armies, but has studied their methods. French and German standards are higher, the system being mainly one of qualification, the supply of candidates being not much (if at all) in excess of the number of commissions (1009–10, 1088). Latin and Greek are subjects in which a candidate must qualify in France (1011–14).

Physical Examination.—Has been making observations and enquiries for two or three years, and thinks that 20 per cent. of the successful candidates might be better physically, the course at Sandhurst being inadequate to make strong, healthy Officers out of bad material (1064, 1116–7). In France, candidates are tested in riding, jumping, and fencing, for which marks are assigned to the extent of half of those assigned for the highest-marked intellectual subject, and in order to get into the Military College at St. Cyr a candidate must obtain a certain number of marks (1065–7); but Frenchmen do not, as a rule, have the same athletic training in their youth as Englishmen, and their riding is generally learned in the riding school (1068–70). In Germany there is no competitive physical test (1087). If a physical examination carrying marks be adopted, it must be simple, and the marks low, *i.e.*, not more than 1,500 (following the French plan). For medical examination—of sight, physical and general health—500 marks (1071–7); for riding, 400 marks (1077–8); for marksmanship with rifle, 200 marks (1078–9); for running, 200 marks; and for gymnastics, 200 marks (1079); and for swimming, good marks, if it could be arranged (1080). All these subjects to be voluntary, except the medical (1083–5). The medical examination could be carried out with numerical accuracy, and not in a very long time (1072–5). Would not say that present medical examination is not carried out properly (1076). Riding power necessary for the Army, and Officers not always proficient in riding (1077–8). Has no knowledge of riding reports from Sandhurst, or of extent to which practical riding is superior in Infantry to that in Cavalry (1081–2). Would not accept athletics as complete evidence of soundness of limb and physique (1085–6). Would make the physical test applicable to all, and not limit it to those within a given range of the line dividing successful and unsuccessful in the intellectual competition (whom, however, the system would most largely affect) (418–19). At present, the physically incapable are more likely to be found amongst the first 50 than among the last (1089–93). The physical test should be a preliminary examination (1094–9). The marks being low, there would be no inducement to "train" specially (1098–9)

* The evidence of this Witness relates to Sandhurst only. (*See* Questions 1161-2.)

SHENSTONE, Mr. W. A., Science Master (Chemistry), of Clifton College (1418-1485*a*; *see* also Appendix XV.)

Army Class at Clifton consists of about 50 boys who enter about 15½ years of age, after an entrance examination, chiefly based upon Mathematics, (1419-22). Précis writing not taught for the final examination (1439). German is not taught so largely as French (1441).

Examination in Literary Subjects.—To have a different syllabus for Sandhurst and Woolwich would cause inconvenience to teachers and the small schools (1456).

Marking.—It is difficult to keep a uniform standard in different subjects (1428), on which condition alone is it advisable to have an open system of examination (1449), which otherwise induces mark hunting (1470). This could be secured by the "range" system of marking (1450, 1475), which is in use at Clifton (1453), but not by counting only the marks above a fixed minimum (1451-2). The marking varies as between subjects from time to time (1454).

Marks.—Would assign a total for the physical examination equal to that attainable in the literary examination (1477-8).

Papers in Science have been of a higher standard than those in the same subject in the Woolwich Course (1434-5). In Modern Languages literature questions might be omitted (1435). In all subjects papers should contain alternative questions (1485*a*).

Syllabus of Subjects.—The syllabus does not sufficiently consider Science which is essential for Woolwich, and gives too great a power of selection of subjects (1423). It should be based upon the principle that a candidate who fails should not be handicapped for other professions by the preparation he has had (1424). Would suggest, for Woolwich, Mathematics, German, and Science as obligatory, and a choice of any two of French, Latin, and Greek; for Sandhurst, Mathematics, German, and French as compulsory; and a choice of any two of Science, Greek, Latin, and History as optional, for both; Drawing to be left as at present (1425-7, *see* also "Note by witness" at the end of his evidence). The Science for Woolwich should be Chemistry and Heat, and should be obligatory, so as to avoid wasting time at Woolwich over the elements of the subject which is all required for the important study of Electricity (1441-7, 1455). Hitherto it has not paid for a candidate to choose a Science subject instead of, or in addition to German, for the entrance examination for Woolwich (1448, 1457-8). For Sandhurst, a choice between Physics and Chemistry might be allowed (1456). A more open syllabus leads to mark hunting (1428-31, 1449, 1470). History a subject in which useful marks can be got with less reading than in others (1432). English might be judged from the candidates' treatment of the other subjects in respect of spelling, &c. (1436). Précis writing might be included in Class I. without a minimum and with low marks (1437-9). The syllabus almost controls the work on the modern sides of the schools (1457-8, 1461); and the course he suggests might be found, at first, inconvenient for many schools (1466), though Science is within reach of most schools, where it is now better taught then by private tutors (1466-9). Schools would not now object to Science being compulsory (1469). The numbers offering higher Mathematics have decreased lately (1459-60). Latin, if placed in the optional class and marked low, would, in time, cease to be taken by the majority of candidates (1463-4). If choice between French, German, and Latin were given the best paying would be taken (1471), though in time Latin would be dropped (1472).

Physical Examination.—Candidates within certain limits on both sides of the line dividing the successful from the unsuccessful in the literary examination might undergo a competitive physical examination, the marks gained being added to those obtained in the literary, and the list re-arranged accordingly (1476-9). The subjects should be left to experts (1480). Has no knowledge of such a system, which, if adopted, should be only experimental (1485). It would encourage athletics, which is needed (1483-4). Walking a distance of 20 to 25 miles, not an unfair test for boys of 17 (1481-2). The well-developed athletic boy is generally most successful in intellectual competitions (1476, 1484).

STIRLING, Lieut.-General Sir W., K.C.B., R.A., Governor and Commandant, Royal Military Academy, Woolwich (1254–1319).

Academy, Royal Military. Has been there since 1890 (1254*a*). Arranges the syllabus of instruction, and recommends appointments on the teaching staff, which is composed of Officers and civilians, to the Commander-in-Chief (1255–7). Does not find the cadets show inability to master the subjects of the course at Woolwich (1313, 16), but there is great difference between the top and the bottom cadets in Mathematics (1314–15) Cadets do 6¼ hours' intellectual work a-day (1317–19).

Age.—Agrees with the present limits of age for entrance to Woolwich, and would not like them to be the same as for Sandhurst (1300–1).

Examination in Literary Subjects.

Syllabus of Subjects.—Does not think that the present syllabus necessarily supplies Woolwich with the best candidates. Sometimes the candidates change the places they held on entrance very considerably at their first and subsequent examinations while in Woolwich, and many unsuccessful candidates might similarly prove better able to cope with the subjects of instruction at Woolwich than some successful candidates (1276–83, 12°5). Is not prepared to suggest alterations in detail in present syllabus, of which he cannot say he disapproves; but thinks it ought to be such as to ensure that the candidates know the proper use of Logarithms, give more attention to Geometrical Drawing, and have enough knowledge of Physics to make the teaching of Electricity more satisfactory (1293–7, 1303–5). Was not aware of any falling off in the knowledge of candidates of Higher Mathematics (1298–9). Would not include the calculus as a voluntary subject (1302).

Physical Examination.—Sees no deterioration in the physique of cadets of the present time from that of those when he first joined the Army (1258–61); but many of the cadets when they join appear worked out, if not even ill-fed, though they improve

at the Academy (1262–64, 1306–7). A certain number of candidates are admitted under the standard of height and chest measurement, at their own risk, on the chance of their attaining the standard before being commissioned (1309–13). Cannot say whether those who are unsuccessful are better in physique than those who are successful (1263). The Army ought to get some of the best physically-developed boys (1265), and would like to see a competitive physical examination if it were possible to arrange the marking (1262, 1266–8); *e.g.*, it has always been difficult to mark for riding at the Academy (1268–9). There is no marking for gymnastics at the Academy (1307). Would include in this examination riding, swimming, and walking (1270–2). A qualifying medical examination not enough (1273). Would sacrifice a good deal of intellectual superiority for the sake of greatly improved physique (1275). Would not restrict this physical examination to those within a certain range of the line dividing successful from unsuccessful in the literary examination (1276–81).

WELLDON, Rev. J. E. C., M.A., Head Master of Harrow (1720–48).

Army Class, boys in, are as good intellectually as most boys on the classical and modern sides (1748).

Examination in Literary Subjects. Would prefer two examinations in the year, but from the public school point of view, would like the dates fixed nearer the end of the school term (1724–5). Examinations for Sandhurst and Woolwich should not be too discrepant, and should be arranged so that failures for the latter might have a chance for the former (1744-6).

Marking.—Does not like the "range" system (1739). "Mark hunting" a result of absence of a compulsory list of subjects (1740).

Marks.—Would like maximum for colloquial knowledge of Modern Languages increased (1730). A plucking minimum should be understood as required in obligatory subjects (1737).

Papers in English History should cover General History, and a special period (1733); does not desire any change from present system of supervising papers (1738).

Preliminary Examination, abolition of, regrettable, and likely to tend to lower the general standard of attainments of candidates (1746–7).

Syllabus of Subjects.—Would like it made permanent, changes of masters at schools being difficult to effect (1722–3). Prefers a classification of subjects as at present to a free choice of a limited number out of a wide range (1726). Compulsory subjects should be Mathematics, one Ancient and one Modern Language, English, including History and Political Geography, and a Science, preferably, Chemistry (1726, 1734, 1736). Latin should be compulsory, Geography is important for Army Officers, and a colloquial knowledge of French or German very useful, and is difficult to acquire late in life (1727–9, 1735). Geometrical Drawing might be included in compulsory list, but choice between German, French, and Latin of such list should not be allowed (1727). English to include Grammar, Spelling, the stress upon which should not be over done, Handwriting and Composition (1731–2). Papers in English History should cover general and special period (1733). The bulk of the subjects should be obligatory, being those of which every educated Englishman should know something, and which should be arranged not without consideration of the majority of candidates who fail (1728, 1735), and by obligatory, means that there should be a plucking minimum (1737). The absence of a compulsory class entails "mark hunting" (1740).

Physical Examination should be qualifying, not competitive, and might be increased in severity, if desired. It would be difficult to carry out such a competition to the satisfaction of the public, and the advantage of the Army, it being impossible to mark for the best qualities, *e.g.*, will power, &c. (1741–4).

WOLFFRAM, Mr. H., Private Tutor (674–761; *see* also Appendix No. XII.).

Classes composed of boys from both public and private schools, those from the latter being often successful (716–9); consist, at present, of from 60 to 70, of whom about one-half are Militia candidates (721).

Examination in Literary Subjects.

Examiners (*see* under *Papers*).

Marking.—Some languages easier to score in than others (713–5). Marking should be supervised by more than one examiner (740–2). Unexpected results due to the candidates themselves rather than to capricious marking (753–4). Marking for spelling should not be rigorous, except where the paper is set with a view to test spelling (755–8).

Marks.—Would require a minimum only in the aggregate of compulsory subjects (690). Marks for "colloquial" in Modern Languages have been unduly reduced (690). Marks assigned by him for the increased course in Mathematics the same as for present range of subject (760).

Papers in Modern Languages should not contain questions in Literature and History (690). In all subjects papers should be supervised by more than one examiner, as in Germany (740–2, 759), but should be anonymous, the Civil Service Commissioners being responsible (743–9). Has once known a case of an examiner examining his own pupils (746–52).

Syllabus of Subjects.—The widest scope should be given to all branches of knowledge (676). The education necessary under his scheme would fit candidates for other occupations (761). Obligatory subjects (for optional subjects, *see* Appendix No. XII.) should be Elementary Mathematics, Geography, one Language, (Ancient or Modern), Essay, and Geometrical Drawing (676), with a minimum only

in the aggregate (690). For Woolwich the standard of compulsory Mathematics should be higher than for Sandhurst (677). Geography found to be a good subject of examination in Germany; it should include descriptive, physical, and political Geography (678–81, 694). It almost is identical with History (701). It is necessary for an Officer (680). Schools would take some time to reach the standard of Geography he would require (682–3) and the subject would perhaps be crammed, though it ought not to be (696–8), and the examiners should prevent that (691–2). Only requires one compulsory Language, and for Sandhurst Elementary Mathematics, so as to enable candidates strong in other subjects to get in (684–9, 702). Essay substituted for Dictation and to be a test of Writing and Spelling mainly (699–700). Literature need not be liable to cram (701). Some clever boys incapable of learning Mathematics (704). In order to prevent a smattering of knowledge, prefers to limit the number of optional subjects to allowing a free choice and imposing a minimum (705–8), though the latter plan might be as useful in giving a lead to boys without natural inclinations (709–12). Admits that some languages are easier to acquire than others, though he proposes to mark all alike (713–15).

German Officers are not subjected to competitive examination of any kind (723, 735–9). There is usually a commission for every candidate who has qualified, a test being constantly applied throughout a cadet's career through the military schools which he generally enters between 10 and 11 years old (733–4, 736–7); those who pass highest being selected for Artillery and Engineers (739).

Physical Examination.—After 30 years' experience, does not consider candidates are deteriorating in physique; he sees the boys in his own classes constantly at their games, and has rather to restrain their athletic ardour (720–2). Has observed that boys of apparently weak physique have distinguished themselves afterwards by their power of endurance, ready resource, &c. (720). Provided a man has a good constitution and is energetic, it is impossible to say what is the physical superiority which would make one a better candidate than another (729–31). Physical competition unfair, almost impossible to carry out, and would probably entail loss to the Service (720). Muscle not a sign of good physical condition (720). In Germany there is no competition in physical capacities (723–4, 727–8, 731), and as regards eyesight the standard admits of the use of glasses (725–6).

WREN, Mr. WALTER, Private Tutor (1994-2086; *see* also Appendix XIX.).

Age.—Maximum limit of age should be settled according to the standard of education required of candidates (2079).

Candidates do come more from schools than they did, owing to the elementary nature of the examination (2051). Parents should not be compelled, by the inferiority of the school instruction, to place candidates with private tutors (2078).

Classes.—Has had classes since 1862 of candidates for most competitive examinations, including the Army (1995-8).

Cramming.—Has always opposed cramming (2050-1).

Examination in Literary Subjects.

Examiners.—Is indifferent as to the publication of the examiners' names (2080).

Marks.—There should be a minimum required in obligatory subjects (2002, 2004, 2028), and in any optional subjects allowed there should be a high minimum (2029). In Mathematics candidates should be required to obtain half-marks before counting any (2047-49). Half the total marks assigned to a Modern Language should be given to the "Colloquial," without an adequate knowledge of which no marks should be earned (2069-74). The most useful subjects should have the highest marks assigned to them (2075-6).

Standard required in the various subjects should be higher (2006, 2009, 2015, 2028, 2051), and that in Mathematics for Woolwich should be equal to what is required for an ordinary scholarship at Cambridge (2065-8). The standard for Woolwich is low, but higher than for Sandhurst (2054-64, 2081).

Syllabus.—Thinks it could be usefully amended, being wrong in every particular (1998-2000). The military authorities have said that there are certain subjects which an Officer should know; these subjects should be obligatory (2003-5), *e.g.*, Arithmetic and Algebra should be more difficult; Latin omitted; French, German, Freehand, and Geometrical Drawing should be compulsory (2006-9). In addition, Geography should be compulsory; it could be made a good examination subject (2009-13, 2015), though perhaps it could be dealt with at Sandhurst (2014), and the History required should be such as the leading military authorities consider necessary, *e.g.*, Military History (2015-23). This could well be taught in schools (2021). So too such Physical Sciences as the military authorities consider necessary, *e.g.*, some knowledge of Chemistry should be compulsory, though it is preferable that for Sandhurst more stress be laid on Electricity (2024-27). Optional subjects should not be allowed, except perhaps one for Woolwich, of which the amount of knowledge required should be extensive (2029), the choice being of those subjects considered the most essential for Artillery and Engineers (2030-1). Latin and Greek not being considered essential should not be required (2032-5). But his own personal opinion is that the examination should be in the best educational subjects, so that the best boys could succeed (2036-7). For example, Mathematics, either French or German, Geography, English Composition, and Electricity should be compulsory (2039-44). Classics are not the best educational subjects, and should not even be voluntary in these examinations, except for Woolwich (2038, 2050). Some scheme should be devised which would enable the authorities to select the candidates best fitted to command (2083-6).

Physical Examination should be limited to a rigid medical test; to require skill in riding would be unfair (2077-8).

Public Schools, is not inimical to (2078).

REPORT

OF

COMMITTEE

ON

CHELSEA AND KILMAINHAM HOSPITALS

TOGETHER WITH

MINUTES OF EVIDENCE AND APPENDICES.

Presented to Parliament by Her Majesty's Command.

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NAMES OF MEMBERS OF THE COMMITTEE.

Chairman:

Lord Belper.

Members:

Sir A. L. Haliburton, K.C.B., Assistant Under Secretary of State for War.

Mr. John E. Ellis, M.P.

Mr. R. K. Causton, M.P.

Mr. R. U. Penrose Fitzgerald, M.P.

Major-General J. Duncan, Deputy Adjutant-General to the Forces.

Mr. H. J. Gibson, *Secretary.*

Reference.

To enquire into the origin and circumstances attending the formation of Chelsea and Kilmainham Hospitals, and whether their revenues could be more advantageously used for the benefit of the Army.

REPORT.

The Committee have examined into the questions referred to them, and have agreed to the following report:—

Origin and circumstances attending the formation of Chelsea and Kilmainham Hospitals.

1. Full particulars of the legacies and gifts to these Hospitals, by means of which a large portion of the lands were purchased, are given in the reports and appendices of the Committees of 1870 and 1882.

Committee, 1870; First Report, Apps. F and G. Committee, 1882, para. 36. Present Report, App. I., pp. 68-70.

2. With regard to the origin of the other funds, a memorandum was laid before the Committee by Mr. Punter, the President of the Chelsea Hospital Army Age Pensioners' Association, an association which appears to have been formed in 1892 for the purpose of securing increased old-age pensions to the Army.

Minutes of Evidence, Q. 161, pp. 20-22.

The contention of the out-pensioners represented by this Association is that—

"From the evidence of Major-General Hutt and Field-Marshal Sir P. Grant there "is no doubt that the Hospital funds belong to the Army, and are held in trust by the "Commissioners for the benefit of the pensioners."

Ibid.

They also allege, on the evidence of the same witnesses that—

"No less than upwards of 1,000,000*l.* was taken in aid of the votes from deduc- "tions made from out-pensioners," and that "the soldiers' own money"

Ibid.

gave the fund provided for the support of pensioners in these Hospitals, and that therefore the

"Government annual grant voted by Parliament to these Hospitals is only part "interest on money which has been extracted from their funds."

The view put forward in the memorandum handed in by Mr. Punter was also adopted by Mr. Vaughan, the Secretary of the Association, and some other out-pensioners.

Q. 262, p. 27.

3. The Committee have also had before them the evidence given before the Committees of 1870 and 1882, and the parts of their reports which affect the present question.

First and Second Reports of Committee, 1870, and Report of Committee of 1882.

General Hutt in his evidence before the Committee of 1870, stated that—

Minutes of Evidence before First Committee, 1870, Q. 110, p. 5.

"The land was purchased and the building erected exclusively with money raised by "stoppages from the pay of the Army, and by some private subscriptions," and that "therefore in fact Chelsea Hospital may be considered as positively private property, "for which the country, as a country, has never itself paid."

Ibid., Qs. 119 and 120 p. 5.

The report of that Committee also to some extent adopted this view It says: –

First Report, p. 3.

"The land required for the building itself, and the land subsequently acquired, "was purchased and the cost of erecting the building defrayed from moneys raised "by deductions from the pay and half-pay of officers and soldiers of the Army, partly "as enforced subscriptions of a day's pay per annum, but mainly as poundage for "prompt issues of pay and half-pay, from gifts and legacies, and from unclaimed prize "money."

Minutes of Evidence before Committee of 1882. Grant, Q. 4126, p. 195. Hutt, Qs. 4365 to 4386, pp. 205 and 206.

4. Similar evidence was given by Sir Patrick Grant and General Hutt before the Committee of 1882.

Report of Committee, 1882, p. 13, para. 46.

That Committee, however, in their report did not accept this view. They say:—

"As regards the rights of the State to interfere with the disposal or administration "of the Chelsea property, we think it well to state that we do not admit the validity "of the arguments advanced by General Hutt in 1870, and repeated on the present "occasion. General Hutt contends that the cost of purchasing the land and of erecting "the buildings of Chelsea was defrayed by deductions from the pay of the Army, "and that consequently this property is in a sense the private property of the Army, "and is no more liable to State interference than any other private property. The "history of the poundage deducted from the men's pay in the 17th century is some-"what obscure. Apparently it was an arrangement made some years before the "foundation of a hospital was contemplated. The money gained by those deductions "was applied partly to defray the Paymaster-General's expenses, partly to lessen the "expense of maintaining the forces; in return the men were to receive their pay "regularly and not in arrear. as they had received it up to that date, so that the "result of this system was to issue the pay of the Army promptly, but at a reduced "rate. When the Hospital was founded this money was diverted from these public "purposes and granted to the Hospital; it was therefore practically a contribution "from the State."

Minutes of Evidence, p. 42-48, 55 and 56.

Apps. VII.-X., pp. 87-112.

5. In order to make the early history of these funds quite clear the Committee have had a detailed examination of the Royal Warrants and other documents affecting the question made by Mr. Seed, one of the Principal Clerks in the War Office, who has laid the result of his investigations before the Committee. Copies of the documents in question and the memoranda dealing with the details are attached.

From this evidence it appears that the funds and revenues of the Hospital in early days were provided from the following sources (in addition to private benefactions):—(*a.*) Poundage from the pay of the Army; (*b.*) Hospital money; (*c.*) Poundage from pensions; (*d.*) Unclaimed prize money.

Royal Warrant of 31st December, 1679, App. VII. Annex 4, p. 95.

Royal Warrant of 17th March, 1684, App. VII., Annex 6, p. 97.

(*a.*) *Poundage on Pay* was a deduction of 1*s.* in the pound from the gross pay of the Army made in 1662, in consideration of the more punctual issue of the pay of the troops. By Royal Warrant of 1684 portions of this fund were to be devoted "towards erecting, building, and maintaining Our Royal Hospital at Chelsea for aged, maimed, and infirm land soldiers."

Royal Warrant of 17th June, 1684, App. VII., Annex 7, p. 98.

(*b.*) *Hospital Money* was the amount of one day's pay of the Army in ordinary years and of two days' pay in leap year, which was by Royal Warrant of 1684, ordered to be applied "towards the building of" Chelsea Hospital, and "maintenance of such soldiers as . . . . shall be provided for therein."

Seed, Qs. 710-746, pp. 42-44.

The evidence, however, makes it quite clear that neither poundage nor hospital money were deducted from the personal pay of the soldier.

Seed, Qs. 710-715, pp. 42 and 43.

The gross pay of the soldier was divided into "subsistence" and "off-reckonings."

App. VII., Annexes. 4, 6 and 8, pp. 95, 96 to 98.

The "subsistence," amounting to 6*d.* a-day, was the personal pay of the soldier, the "off-reckonings," amounting to 2*d.* a-day, were the allowance to

the Colonel for the clothing and accoutrements of the men, and for such other purposes as might be ordered by Royal Warrant; and a Royal Warrant of that time specially directs that the poundage and hospital money should come out of the "off-reckonings" fund, and the accounts of that period show that those orders were carried out.

Royal Warrant of 27th November, 1687, App. VII., Annex S. p. 98.
App. VII., Annex 11. p. 102.

It is, therefore, clear that, in the words of the Secretary at War in 1834:

"The privates and non-commissioned officers of the Army did not in reality contribute anything, and were in no respect whatever affected by these deductions,"

App. VII., Annex 12, p. 103; also Q. 740, p. 44.

as such deductions from the off-reckonings could not in any way alter or affect the pay received by the soldiers, but invariably came out of the surplus, which would otherwise have gone into the Colonel's pocket.

(*c.*) *Poundage on Pensions.*—This was a deduction of 5 per cent. made by an Act of Parliament of 1754. Up to that time pensions were by regulation not payable until the end of every 12 months, and were practically at least one year in arrear. The Act of 1754, directed that in future they should be paid half-yearly and in advance, and the above deduction was made to cover the cost of that measure. The change effected by this Act was looked upon as a great boon by the pensioners, who were relieved from the necessity of borrowing from usurers till their pensions were paid.

Seed, Qs. 747-773, pp. 45 and 46, and Qs. 1061-1066, pp. 55 and 56.
28 Geo. II., c. 1.
Parliamentary History of England, Vol. xv., p. 347; Q. 1063, pp. 55 & 56. Hansard's Parliamentary Debates, 3rd Series, Vol. 89, p. 485; Q. 1064, p. 56.

(*d.*) *Unclaimed Prize Money.*—This was directed by Act of 1805 and subsequent Acts, to be paid "for the use" and for "general" and "current" services of Chelsea Hospital, and one of these current services was the payment of out-pensioners. There is nothing to show that these sums were ever regarded as the property of the pensioners, and the contention that they should have been set aside as capital belonging to the Hospital is not borne out by the Acts of Parliament referred to. Parliament provided all the surplus required for Chelsea Hospital and for out-pensions, and the unclaimed prize money was regarded as public money to be used in reduction of the votes.

45 Geo. III., c. 72, sec. cxiii.
49 Geo. III., c. 123, sec. xvi.
51 Geo. III., c. 104, secs. ii. and iii.
52 Geo. III., c. 132, sec. iii.
54 Geo. III., c. 86, sec. li.
2 Will. IV., c. 53, sec. ii. and xlii.
Seed, Q. 790, p. 47.
App. X., pp. 110 and 111.

Although there appears to have been some irregularity in the appropriation by the Exchequer of balances between 1841 and 1853 without the authority of the Chelsea Commissioners, yet practically this did not affect the funds of Chelsea Hospital, as the surplus required was always made up by votes of Parliament.

Dowling, Qs. 107-114, p. 18.
Stuart, Qs. 666, 672-680, pp. 40 & 41.
Seed, Qs. 783-811, pp. 47 and 48; also App. VI., pp. 82-86.

A balance of 79,000*l.* of unclaimed prize money is still held by the Hospital. It is invested in consols, and the interest used for the services of the Hospital. If this sum were otherwise appropriated the amount now received as interest would have to be voted by Parliament.

Dowling, Q. 126, p. 19.
Stuart, Qs. 682-687, p. 41., and App. II., p. 75.

6. The Committee are therefore clearly of opinion that the investigations which they have made into the origin and appropriation of all these funds, prove conclusively that there is no ground for the contention that the money was in any sense provided by the soldiers themselves, or that any sums have been improperly appropriated either from the pensioners' money or from the unclaimed prize money.

Apps. VII. to X., pp. 87-112.

7. It is, however, not surprising that the representatives of the out-pensioners have been misled, when it is considered that their contention rested entirely on the evidence of Sir Patrick Grant and General Hutt, evidence that has been hitherto scarcely challenged, except in part by the report of the Committee of 1882.

Paras. 3 and 4 of this Report.

Early History of the Royal Hospital at Chelsea (published in 1872), Preface and pp. 17, 28, and 29. Handbook to Chelsea Hospital, p. 6 (last edition published in 1885.) Dowling, Q. 145, p. 19.

It should, moreover, be noticed that these statements on which the out-pensioners not unnaturally relied, have been embodied in the official history of Chelsea Hospital, and in a handbook, both issued under the authority of the Commissioners of Chelsea Hospital.

8. The Committee hope that the investigation which has now taken place into the early history of these funds, verified as it has been by reference to ancient documents bearing on the question, has placed the real facts of this controversy beyond doubt, and will prevent any further misconception in the future.

Whether the Revenues could be more advantageously used for the benefit of the Army.

Minutes of Evidence, p. 21, paras. 8 and 9 of Memorandum.

9. Under this head, the memorandum put in by the Pensioners' Association contends that there is no need for these Hospitals, and that out of 20,000 pensioners (over 55 years of age) only 678 men, the great majority of these being unmarried, receive any benefit from them.

Ibid., para. 10, and Q. 163, p. 22. Valuation by Messrs. Penney & Clark of Portsmouth.

That the estates, &c., if sold would bring in, from Chelsea, 69,705*l.*, and from Kilmainham, 10,000*l.* annually.

Ibid., para. 10.

It suggests that the Army Estimate Grant should be increased to 50,000*l.* per annum, and that these sums, with the income from legacies, 3,295*l.*, would amount to 133,000*l.* per annum, and that this amount (or whatever sum was actually realized) should be used to give an extra 6*d.* a-day to the oldest pensioners irrespective of the amount of their pension or the extent of their infirmities.

Vaughan, Q. 269, p. 28.

Grant, Qs. 1-15, pp. 13 and 14. Stuart, Qs. 16-65, 567-688, 1012-1060, pp. 14-16, 37-41, 53-55. Dowling, Qs. 66-145, pp. 16-19. Evidence of 18 in-pensioners. Qs. 334-566, 812-859, pp. 30-37, 48 & 49. Evidence of 13 in-pensioners. Qs. 860-1011, pp. 49-53.

10. The Committee have examined the Governor and others of the Staff of the Hospital, and also a considerable number of the in-pensioners, especially with regard to the suggestion that Chelsea and Kilmainham Hospitals should be closed, and the funds devoted to the out-pensioners. They also visited Chelsea Hospital, and took the evidence of several of the more infirm pensioners.

The evidence thus gained confirms the view expressed by Mr. Vivian's Committee in 1870, viz.:—

First Report, 1870, p. 4. *Ibid.*, p. 5.

"That no amount of increased pension that it would be practicable to give "would enable the men to be cared for outside the Hospital as they are cared for "at present," and that "the Hospital is in fact an almshouse of the best description "for the most infirm and helpless" . . . . "for those who are the proper objects "for it," and that, "although like every such institution, it involves in a great degree "the separation of its inmates from their families and friends, it is very certain that "no increase of pension that could be given would compensate for the comforts, both "in lodging, food, and medical attendance afforded by the Hospital to those who "are without friends, and are incapacitated by infirmities from taking care of themselves."

Qs. 689-705, pp. 41 and 42. Qs. 1095-1109, p. 58.

This view was further confirmed by the evidence of His Royal Highness the Duke of Cambridge, Commander-in-Chief, and General the Right Hon. Sir Redvers Buller, the Adjutant-General.

11. The Committee believe that a serious hardship would be inflicted on deserving infirm pensioners if these Hospitals were closed. It would also

appear that in common justice some special provision would have to be made for the most helpless and dependent cases, to prevent them being driven into the workhouses, as it has been given in evidence that there is no room that could be appropriated in the military hospitals for any such cases.

Mackinnon, Qs. 1068 and 1075, pp. 56 & 57, also App. XVIII., p. 120.

12. In regard to the financial side of the question it appears that the Pensioners' Association in some of their printed documents at one time estimated the value of the Chelsea estate to be upwards of 4,000,000*l.* The figures submitted by the Pensioners' Association to the Committee were based on an estimated value for the estate of 2,323,000*l.*

Punter, Qs. 232 and 233, p. 26. Chew, Q. 303-306, p. 29. Penney and Clarke's valuation. Q. 163, p. 22.

The Committee have had a valuation of the lands belonging to Chelsea Hospital made by Mr. Taylor, the Senior Surveyor of the Office of Works. He estimates the net value of the Chelsea Hospital estate if put in the market as a whole at 802,508*l.* This he admits is its outside value, and it is based on an estimated rental value of 4*d.* per foot, after deducting the amount to be taken up by roads. It appears that the pieces of land already let by the Commissioners, have been leased for $1\frac{3}{4}d.$ and 2*d.* per foot, but it was stated that the former of these was rather an inferior site.

Taylor, Qs 1160-1227, pp. 61-63. Q. 1176, p. 61. Q. 1225, p. 63. Q. 1181, p. 62. *Ibid.*

Evidence was given that, in 1892, Mr. Elwell, Valuer to the War Department, reported to the Chelsea Commissioners that the value of $11\frac{1}{2}$ acres of this land, in an exceptionally good position, was about 120,000*l.* Assuming that the same value would attach to the whole estate, it would give a total sum of from 600,000*l.* to 700,000*l.*

Stuart, Q. 28, p. 14. Dowling, Q. 82, p. 17

13. It must be borne in mind that these estimates of value rest upon the assumption that no objection would arise on the part of the public, the London County Council, or Parliament to the demolition of the Hospital and other buildings, the cutting up of the ground into building plots and occupying it with streets and houses; in fact, treating the estate solely from the point of view of the speculative builder.

14. Assuming, however, that the land could be all sold for building purposes, and that the amount estimated by Mr. Taylor, viz., 802,508*l.*, might be realized, the income thus derived would be inadequate to provide 6*d.* a-day to any large number of old pensioners. The interest of the above sum, together with the present private revenues of Chelsea Hospital, might amount to about 26,000*l.* This would give 6*d.* a-day to 2,850 pensioners. It appears from a return that the present number of Army pensioners is 82,403. Of these 37,184 are over 55 years of age, and 18,792 are over 60 years of age, so that less than 1 out of 12 of those over 55 years and less than 1 out of 6 of those over 60 years would receive any benefit. In this calculation no reference has been made to the amount voted annually in the Estimates for Chelsea Hospital; but, even supposing Parliament were still disposed to vote these sums after the Hospitals were closed, it would remain an imperative duty on the nation to make some provision for the most infirm pensioners, who now have a claim for admittance to these Hospitals, and this charge would probably account for a considerable portion of the present annual vote.

App. XVII., p. 120.

15. In connection with this it appears from the evidence of the in-pensioners, that even those few who are anxious to leave the Hospital, state that they could not get a living outside, unless their pensions were increased by a far larger amount than 6*d.* a-day. In most cases an addition of from 1*s.* to 1*s.* 6*d.* a-day to their existing out-pension was the least amount which those pensioners would accept as any equivalent to the comfort and attention which they now receive in the Hospital. It would not appear, therefore, that the funds available could satisfy in any way the expectations of the out-pensioners, even if it

Qs. 334-566, pp. 30-37. Qs. 812-859, pp. 48 & 49 Qs. 860-1011, pp. 49-53.

	A-day extra.
1 required	2*s.* 3*d.*
2 ,,	2*s.*
1 ,,	1*s.* 8*d.*
2 ,,	1*s.* 6*d.*
2 ,,	1*s.* 5*d.*
1 ,,	1*s.* 4*d.*
2 ,,	1*s.* 3*d.*
1 ,,	1*s.* 2½*d.*
1 ,,	1*s.* 2*d.*
1 ,,	1*s.* 1*d.*
1 ,,	1*s.*
2 ,,	6*d.*

Royal Warrants, 17th March and 17th June, 1684. App. VII., Annexes 6, 7, pp. 97 and 98.

were deemed advisable, on other grounds, to abolish an institution which was founded as a refuge for "aged, maimed, and infirm soldiers," and the benefits of which seem to be highly appreciated by the inmates.

Stuart, Qs. 590-597, 600, 601, p. 38; Q. 1032, p. 54. Also App. V., p. 82.

16. Evidence was given that the applications for admission have considerably increased, whilst the number of vacancies per annum have diminished.

Stuart, Qs. 33-59, pp. 14-16; Qs. 570-591, pp. 37 and 38; Qs. 619-627, p. 39; Qs. 642-646, p. 40. Also App. III., pp. 80 and 81.

If, therefore, any change is needed it would seem probable that it should be in the direction of increased accommodation for in-pensioners. A tentative scheme was, on the suggestion of the Committee, prepared by General Stuart involving the sale of the present estate, and the erection in the country of a large hospital with increased funds. This scheme was not, however, laid before the Committee in any official manner. General Stuart expressly guarded himself against advocating it, and the Committee are not prepared to recommend it for adoption.

If, however, provision for an increased number of pensioners were found necessary, it would be easy to extend the present buildings. The question whether the funds should be provided by the sale or lease of any of the surplus lands which are not required for the Hospital and grounds, or by appropriating any part of the 100,000*l.* now in the hands of the Hospital Commissioners would be a matter for careful enquiry.

Stuart, Qs. 582-586, p. 38. Duke of Cambridge, Q. 704, p. 42. Mackinnon, Qs. 1080, 1090, p. 57. Buller, Qs. 1129-1133, p. 59.

17. It seems to be generally admitted that it would be a great advantage if some arrangement could be made in civil hospitals, or otherwise, for men discharged to temporary pension on account of disability after leaving the military hospitals, so that they might receive some care and attention till they are strong enough to get their own living.

Stuart, Qs. 56, 57. p. 15. Para. 9 of memo., p. 21. Punter, Q. 215, p. 26. Chew, Qs. 300, 307-309, p. 29. Buller, Qs. 1117-1119, p. 59.

18. Attention was also called to the case of those infirm pensioners who were not admitted to Chelsea because they are unable to provide for their wives and families. A statement was made by the representatives of the out-pensioners, that many of the most infirm married men, not being able to get admission to Chelsea, have to go into the workhouse, and it was suggested that some remedy should be provided to meet such cases.

Stuart, Qs. 592, 606, 648-656, 1030-1060, pp. 38, 40, 54 and 55. Buller, Qs. 1112-1116, p. 59. Stuart, Qs. 633-641, p. 39.

19. In the course of the enquiry attention was directed to some points connected with the administration of the Hospital, such as the mode of selection of in-pensioners, and the regulations with regard to clothing. Although technically these points may come within the terms of the reference "whether the revenues of the Hospital can be more advantageously used," yet the Committee are of opinion that the administration of the Hospital was not intended to be included in their enquiry, and they have not thought it their duty to take evidence in detail, or to express any opinion on this subject. The evidence on these points should be dealt with by the Commissioners of the Hospital.

Duncan, Qs. 1139-1159, p. 60.

20. Whilst the Committee have specially directed their enquiry to the circumstances of Chelsea Hospital, General Duncan showed in his evidence that the conditions of Kilmainham are so similar that the arguments both as to the origin of the funds, and also against closing Chelsea Hospital, apply with equal strength in the case of Kilmainham Hospital, and, indeed as far as the financial aspect of the question goes, could be urged with even greater force in the case of the latter Hospital.

The land at Kilmainham is comparatively of very small value. It is probable that the estimate formed by the Pensioners' Association of the amount of revenue likely to be acquired by the sale of these lands, viz., 10,000*l.*, far exceeds the amount that would actually be realized as interest on the capital value of the property, and at all events whatever might be the exact figures, they could have no material effect on the calculations already given. The Committee have not therefore thought it necessary to take further evidence as regards Kilmainham.

Punter, Q. 163, p. 23; Q. 195, p. 25.

Conclusions.

21. The Committee are of opinion that the Hospitals of Chelsea and Kilmainham should continue to be maintained for the benefit of deserving "aged, maimed, and infirm" pensioners.

Royal Warrant of 17th March, 1864. Appendix VII., Annex 6, p. 97.

22. The Committee believe that it would be desirable that an enquiry should be made as to the necessity for an increase, either at present or in the near future, in the accommodation of Chelsea Hospital.

The question whether any portion of the lands of the Hospital could be disposed of to provide a fund for such purposes, without detriment to the Hospital, should be included in such enquiry.

BELPER.

ARTHUR L. HALIBURTON.

JOHN E. ELLIS.

RICHARD K. CAUSTON.

R. U. PENROSE FITZGERALD.

J. DUNCAN, *Major-General.*

H. J. GIBSON, *Secretary.*

20*th August*, 1894.

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MINUTES OF EVIDENCE

OF

COMMITTEE

ON

CHELSEA AND KILMAINHAM HOSPITALS.

WAR OFFICE.

WEDNESDAY, 4TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. JOHN E. ELLIS, M.P.
Mr. R. K. CAUSTON, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Field-Marshal Sir PATRICK GRANT, G.C.B., G.C.M.G., *examined.*

1. *The Chairman.* You are the Governor of the Royal Hospital at Chelsea, I believe?—Yes.

2. For how long have you held that appointment?—For 20 years.

3. I think you gave some evidence before Lord Morley's Committee in 1882?—Yes.

4. That Committee, as you are aware, enquired into some points which are over and above the points that we have to enquire into, which are mainly two. First, what is really the origin and the circumstances attending the formation of these hospitals; and, second, whether their revenues can be more advantageously used for the benefit of the Army. With regard to the second point, have you any suggestions to make which would lead to the endowments being more advantageously used than at present?—I do not think they can be better used than they are under the present system; I should say leave that system as it is.

5. Then you do not want to make any change?—Certainly not.

6. I think in your evidence before the former Committee you stated that short service could not, even in time to come, make the hospital less valuable to the soldier than it was then?—That is so.

7. Has anything happened since which has led you to alter that opinion?—No, I still adhere to it.

8. You rather suggested then that it would be better to wait for further experience?—Yes. Since the introduction of short service there has been a reduction in the number of men coming to the hospital, though the last figures show that there were 83,000 out-pensioners. There is a very large number of invalids from India and the Colonies, and they help to keep up the numbers. There are 549 in-pensioners.

9. If there were a certain number of in-pensioners who wanted a change you would not think them justified in speaking for all the pensioners, would you?—Most decidedly not. If an in-pensioner wants to revert to an out-pensioner he can do so, and some of them have done so; but in almost every instance they have asked to be brought back again, and that, I think, is a strong point in the favour of the present system.

10. Have you anything to add to the evidence you gave to the other Committee?—No, the existing system is excellent, and I should deprecate any change.

11. *Mr. Ellis.* May we take it from you that in

your opinion the revenues of Chelsea Hospital could not be more advantageously used for the benefit of the soldier than they are at present?—That is so.

12. *Mr. Causton.* Have you thought at all whether it is desirable to increase the number of pensioners in Chelsea Hospital?—There is no accommodation for that.

13. Would it be advisable to have more accommodation?—I think matters are going on extremely well as they are, and I should deprecate any change; things are most satisfactory now.

14. *The Chairman.* After a man has applied to come into the hospital, how long is it before he gets in?—It takes a considerable time, and there is a considerable amount of correspondence to be gone through; at the present moment we are letting in 12.

15. Have any complaints or representations been made to you by those representing the pensioners, with regard to a desire for a change and for the funds being spent in a different way?—No, none at all.

(*The witness withdrew.*)

Major-General E. A. Stuart, *examined.*

16. *The Chairman.* You are the Lieutenant-Governor of the Royal Hospital at Chelsea, I believe?—Yes.

17. For how long have you held that appointment?—Since 1887.

18. The Committee of 1882 had the advantage of the views of your predecessor, General Hutt, and in giving your evidence you will perhaps keep in mind the evidence given by him. Our present inquiry is confined to two main points, first, the origin of Chelsea and Kilmainham Hospitals, and second, the question whether their revenues could be more advantageously applied for the benefit of the Army. With regard to the first point, can you state the circumstances attending the origin of these Hospitals?—I was not aware that I should be asked to give evidence upon that point to-day, so, if the Committee will allow me, I would prefer to leave that over till a later day. With regard to the other point I should like to mention that very many people are under the impression that the whole of the land of the Hospital was bought some 200 years ago. That is quite a mistake, for of the 67 acres belonging to the hospital 13 acres were bought as recently as 1845 or 1850.

19. Can you say whether you agree generally with the views expressed by your predecessor before the Committees of 1870 and 1882?—I could not say offhand, but I will look into that.

20. There seems to be an impression among some of the pensioners, and the people representing them, that the funds of the Hospital might be better used if the Hospital were done away with?—My own opinion is that the Hospital ought to be increased rather than reduced. At present it takes almost 12 months after a candidate applies before he can obtain admission, and that is a very long time for men in a state of destitution. By Act of Parliament those men must be proved to be incapable of supplementing their pension, and a year is too long to make them wait. If there were more accommodation we could easily find room for double the number of men we now take, and out of something like 80,000 pensioners 500 are very few to benefit.

21. I understand the Hospital is always full?—Yes, we fill it up every month.

22. How many vacancies are there in the year?—The numbers vary from 65 to 90 in the year.

23. Are any of those vacancies caused by pensioners leaving the Hospital of their own account?—Yes, a few of them, but they generally want to come back within a month or so; they are generally persuaded by their relations to leave, and then, when they find it impossible to get suitable employment, they apply to come back again. Another thing is that many of the unsteady ones, hearing of this agitation to do away with the Hospital, have thought that they would go out in the hopes of getting a larger pension.

24. Have you heard among the in-pensioners any wish expressed with regard to altering or doing away with the Hospital?—I think nine-tenths of them desire to have it remain as it is, because the benefits that they derive in the Hospital they could not obtain outside for an extra 6*d.* a-day, or any such small sum as that.

25. With regard to that point, can you say what the annual cost of an in-pensioner is?—I think the average is about 30*l.*; the whole expense of the Hospital amounts to about 23,000*l.* a-year, exclusive of the Secretary's office, which carries on, and manages the out-pension business, and to the cost of which the in-pensioners contribute about 11,000*l.* a-year. So that really the institution costs only about 11,000*l.*, in addition to what the public pay for the maintenance of the building.

26. How much do the in-pensioners give up a-day?—On the average about 1*s.* a-day.

27. I see that in his evidence in 1870, General Hutt states that the average cost of an in-pensioner is about 2*s.* 3*d.* a-day, have you worked that out at all?—I think it is much less than that now, because expenses have been very much reduced of late.

28. Are you prepared to speak as to the value of the property and the income of the Hospital?—I can tell you the value of the legacy and prize fund, but no one can tell you the value of the property, though we can give you an idea of that, because about 11 acres were valued some three years ago, and they were valued at some 120,000*l.*, with a tendency to rise.

29. What 11 acres were those?—The 11 acres facing the barracks, known as the old Ranelagh Gardens.

30. Some of that front land is the most valuable of all your land, is it not?—Not the most valuable, because it faces the barracks, and that depreciates property. I think the most valuable portion of our land is that at present occupied by the cricket ground at Burton Court.

31. The valuation you are giving is at second-hand. Can you say who it was that gave that valuation?—Yes, the War Office Surveyor, Mr. Elwell. It was valued because the County Council wished to take over that portion of the ground; but the Commissioners thought that as the land had been bought out of legacies left for specific purposes they could not give it over as was desired, and when the County Council saw the terms of the different bequests they were quite disposed to accept the decision the Commissioners had come to on the subject. The land was valued then as being worth about 3,000*l.* a-year.

32. Can you supply us with the figures showing the income of the Hospital, that is, with regard to the gross receipts and net expenses?—Yes, I will have them made out for you.

33. Do you think the revenues could be used in a more advantageous manner than they are at present?—Not unless some or all of the property were disposed of. I think the number of in-pensioners should

be increased from 500 to 1,500. The accommodation at present provides for only 551; but, I think, in order to do anything like justice to the 80,000 and odd pensioners, there should be accommodation for at least 1,500.

34. Can you suggest any possibility or probability of being able to effect that without asking for a larger grant from Parliament Do you think there is anything with regard to the disposition of the present property, or a part of it, which would enable us to do that?—Either a part of the property might be disposed of, and the present Hospital increased, or the whole of the property might be sold, and then we could have accommodation for 1,500 irrespective of all voted funds. The property would bring sufficient, I think, to put up a hospital for 1,500 pensioners in the country.

35. Can you give us any figures which will illustrate that suggestion?—Yes, I can take a low estimate of the value of the property, and then take the cost of feeding and clothing a pensioner.

36. We should like to have those figures, because if you think that 1,500 pensioners instead of 500 might be taken, it is very desirable to see how far that is financially practicable?—I will do that. I should like to explain that there are many pensioners who are very needy, I mean the temporary pensioners. These men have no claim upon the institution because they are not permanent out-pensioners, but they come home from India and elsewhere suffering from climatic and other diseases, and if they could be taken into the Hospital and kept there till they are cured, I think it would be a great advantage to the Army generally.

37. There is no provision for that now, I presume?—No, nothing of any kind except a temporary pension, which is after all only a very small one, about 6*d.* a-day generally. A number of those men suffer a great deal, and if anything were done in that way it would be a great benefit.

38. Your suggestions are in the direction of increasing the advantages of the present system rather than by doing away with it?—Certainly.

39. Then you do not agree with those who think it might be practicable to devote the funds which might be derived from the sale of the land to increasing the out-pensions?—No, I think there would not be sufficient money to make any appreciable increase in the rate of pension; people have such an exaggerated idea of the value of the property.

40. It has been suggested to us that we should probably have some evidence on behalf of the in-pensioners, we have already had some communication with representatives of out-pensioners, and the Committee wish it to be known that although they do not invite any of the in-pensioners to come and give evidence, yet if there is anyone who has any independent information which he wishes to put forward, the Committee will be glad to hear him. A letter upon the subject has already been addressed to Chelsea Hospital.—I will see into that.

41. *Mr. Ellis.* We do not wish it afterwards to be said that any obstacle was placed in the way of men coming here?—I am the Executive Officer of the Hospital, and I will see that there is no difficulty placed in the way of any man coming forward.

42. *Mr. Causton.* Supposing an increase were made in the accommodation, that would mean an additional charge for the expense of management, would it not?—The staff would have to be increased and the houses and buildings would also have to be increased; what I would suggest is that there should be an increase of 1,000 to the present number of inmates, that is, admit 500 more of the old out-pensioners, and have 500 temporary pensioners during the year. If that were done I am sure it would satisfy the Army in every way.

43. Do you think that the complaints that we hear of outside arise from the fact that there are a great many who would like to get into the Hospital?—We have a great many desiring to come in. Generally the in-pensioners are very favourable to the institution, although some of them when they are told that they would probably get an increase of money, which they suppose would be much larger than it ever can be, express a desire to leave.

44. *Sir A. Haliburton.* They generally expect to get about 2*s.* extra a-day, do they not?—Sometimes as much as 2*s.* sometimes only 6*d.*

45. *Mr. Ellis.* To the best of your recollection how many pensioners have gone out with the idea that their position would be improved?—That has only been done lately; I should say not more than two or three a year.

46. Then with regard to the second part of our enquiry, namely, that having reference to the question whether the revenue of Chelsea Hospital can be more advantageously used for the benefit of the Army, I understand that you will lay before us a definite scheme with regard to the suggestions that you have made?—Yes, if you wish me to do so, but I do not know that I have any right to do it.

47. *The Chairman.* I think it will be very desirable that we should have a scheme embodying those suggestions if you will kindly draw one up?—Yes, certainly.

48. *Mr. Fitzgerald.* You seem to think it might be to the advantage of the Army if the whole of the present Hospital were sold and more accommodation given in the country, so as to enable a larger number of in-pensioners to be taken?—Yes, and if that were done, I think it could be maintained quite apart from any application of money from the public funds; or, on the other hand, a portion of the present Hospital grounds might be sold so as to enable the accommodation at Chelsea to be increased.

49. But which of those two schemes do you like best?—My own personal opinion is that it would be better for the old men to be out in the country; however, what I wish to impress upon the Committee is that the accommodation at present is not sufficient in any way for the number of pensioners who are applying to come in.

50. *Mr. Ellis.* You wish, in fact, to increase the advantages derived from the revenue?—Yes, and to trench as lightly as possible on the public funds.

51. *Sir A. Haliburton* The theory is, is it not, that you only take in men who are incapable of working?—Yes.

52. Do you take in men who are capable of doing something?—Yes, but only a certain number, 25 out of 500.

53. Are those men who are stated to be incapable of working not even capable of doing light work about the Hospital?—No, they are not asked to do anything; but if they do anything they are paid for it.

54. *Mr. Causton.* Is it not the fact that if any of the men are found to be obtaining money for outside services the Commissioners discharge them from the Hospital at once?—That has been done lately.

55. *Sir A. Haliburton.* When you referred to taking away a man's pension, does a man get no money at all when he enters the hospital?—He gets what the Hospital gives him, formerly it was a penny a-day, but the authorities have been able to supplement that lately by giving another penny, so that the lowest class of in-pensioners get twopence a-day.

56. There are a certain number of married men, are there not, with wives outside?—When a man comes up he has to certify that he has no wife or children dependent upon him.

57. *Mr. Fitzgerald.* And if a man has a wife with claims upon him would he be refused?—Yes, because if a man came in the woman would be thrown upon the rates, unless she were able to support herself, in the latter case a man would be admitted.

58. *Sir A. Haliburton.* Is it not the case that you have bought and sold land round the hospital?—We have bought and exchanged land, we did that when the embankment was made, we then exchanged some land with the Metropolitan Board of Works In the

statement I shall prepare I will show exactly how the property was obtained, and when and what was given for it.

59. But have you sold any land?—No, we cannot sell it, but we can let it on lease; that is the opinion of the Treasury Solicitor on the subject. (*Vide* Appendix XI.)

60. Can you also show what you get under the building leases?—Yes.

61. With reference to taking in 500 temporary pensioners, are there as many as 500 of those young men coming home every year?—Yes, I should think so, we get a very great number of that class of men coming home from India.

62. *The Chairman.* Of course the number that you could take in over a series of years would depend upon how long it took to cure them?—Yes, certainly.

63. *Sir A. Haliburton.* But when they come to England very ill they go into Netley, do they not?—Yes, and they are discharged from Netley as soon as possible; that is almost as soon as they can leave their beds, which really means that in many cases they are thrown upon their friends.

64. *The Chairman.* You have spoken of about 80,000 out-pensioners, has that figure been very constant or not during the last few years —It is a very odd thing that under the short-service system that number has remained practically stationary.

65. *Major-General Duncan.* I presume that is due somewhat to the alteration in the condition under which men get pensions; for instance, they get pensions earlier now than they did?—Yes, there is a difference now, they can get a pension for 18 years instead of having to wait 21 years.

(*The witness withdrew.*)

Mr. John Dowling, *examined.*

66. *The Chairman.* You are the Assistant Secretary at the Royal Hospital, Chelsea, I believe?—Yes.

67. And I believe you gave evidence upon the subject, that we are now considering, before Lord Morley's Committee in 1882?—Yes.

68. Our present enquiry has reference rather, in the first place, into the origin and circumstances of these hospitals, and in the second place we have to report whether the present revenues and funds can be used more advantageously in the interests of the Army than they are at present. Dealing with this first head, will you please state briefly how the funds have been acquired, and what at present they amount to?—The original fund arose out of monies which the public were invited to subscribe to the erection of a hospital, and the first acquisition of land obtained was a plot of 27 acres purchased from a sum given by Sir Stephen Fox, and amounting to 1,300*l.* Then the next monies were obtained from deductions ordered by the King to be made from the pay of all the forces, and after that, funds were similarly obtained from the retired and half-pay of the Officers. Then later on there was a deduction made of a day's pay in the year from all the forces, so that practically the erection of the Hospital was carried on with funds which were not Parliamentary. All those details you will see in the "Early History of the Royal Hospital at Chelsea," published in 1872.

69. I observe, with regard to those tables, that the figures stop at the year 1846-47, can you tell us what is the reason for that?—The book professes to be an account only of the early history, not the current history, but the figures beyond that time can be compiled.

70. Will you put them in?—Yes. The Hospital is mainly supported now from Parliamentary grants, so that in modern years it will be merely an account of the expenditure of the amounts voted, together with some small sum derived from legacies and prize fund.

71. With regard to the first heading, showing poundage and deductions from the forces, can you quote me evidence in support of those details?—Yes. In the year 1679, there was a Royal Warrant issued, dated the 31st December, which recites that, for 18 years previously Sir Stephen Fox had, by an agreement with the Officers of the Guards and garrisons (which means, I presume, the Colonels only) deducted a sum of 1*s.* in the £ from the pay of the soldiers in return for weekly advances of pay. Later on it appears that he resigned that arrangement, and by the Warrant, dated 17th day of March, 1683-84, it was laid down that the 1*s.* should still be deducted, but that one-third should be applied for Exchequer fees to the Paymaster of the Forces, and the other two-thirds should be at the King's disposal for lessening the payment of the establishment of the Forces, and for erecting and maintaining the Hospital at Chelsea. The weekly pay advanced for the ordinary private soldier then was 3*s.* 6*d.*, and 4*s.* in the Guards. In 1684, there was a further Warrant, deducting one day's pay in each year from every Officer and soldier in aid of the building of Chelsea Hospital.

72. What is your general deduction from those facts?—I cannot say precisely; the money is usually called a contribution from the Army, but it was by an order from the King. I presume the 1*s.* would have come from the off-reckonings, and possibly would never have reached the soldier at all, if it had not been deducted for the purpose mentioned.

73. *The Chairman.* Generally, have you any reason to differ from the statement made at page 13 of the Report of the Committee of 1882, which says, "The history of the poundage deducted from the men's pay in the 17th century is somewhat obscure. Apparently it was an arrangement made some years before the foundation of a hospital was contemplated. The money gained by these deductions was applied partly to defray the Paymaster-General's expenses, and partly to lessen the expense of maintaining the forces; in return the men were to receive their pay regularly and not in arrear, as they had received it up to that date, so that the result of this system was to issue the pay of the Army promptly, but at a reduced rate. When the Hospital was founded this money was diverted from these public purposes and granted to the Hospital; it was therefore practically a contribution from the State." Do you generally agree with the conclusions come to by that Committee?—It was a contribution from the King who had it at his disposal for any military purposes.

74. Then would you agree with it in so far as to alter the word "State" to that of "King"?—I merely wish to point out that the King devised the contribution without direct recourse to Parliament.

75. *Mr. Fitzgerald.* And without a reduction from the pay of the private soldier?—I cannot tell, because I have no means of knowing. Personally I think the money would never have reached the soldier even if it had not been applied for these purposes, but I have no means of verifying that.

76. *The Chairman.* What is the sum taken this year for the maintenance of the Hospital?—The sum to be voted in this year's Estimates, after deducting the cost of the Secretary's office, is 22,900*l.*

There is a set-off against that of out pensions surrendered by in-pensioners amounting to nearly 10,000*l.* Therefore the net charge for in-pensions is really only 12,900*l.*, that is for the support of the in-pension establishment. Then there is the expenditure by the Office of Works for repairs, 2,100*l.*; for furniture, 1,050*l.*; and for fuel, light, &c., 3,060*l.*; and by the Treasury for rates, 1,426*l.*; these sums making up 7,636*l.*, so that the total Parliamentary cost for the year will be about 20,536*l.*

77. That is a slight reduction on the amount shown in the report of 1882, which gives the net expenses as 23,500*l.*?—Yes, our expenses now are rather less; food is cheaper, and clothing is also cheaper, besides which some economies have been effected in various ways. The amounts surrendered now for out-pensions are higher than they were, because a very much better class of men is taken in than formerly. As a rule, no man with a small pension is taken in, because a small pension denotes an inferior claim on the part of the man receiving it.

78. Can you give us the amounts of the present income of the Hospital received from the various funds and legacies?—The present income from the several legacies amounts to about 1,100*l.*

79. I see by the paper before me that the present funds, which are derived from money not voted by Parliament, give dividends of about 4,000*l.*?—The dividends from legacies and unclaimed prize money and land purchased from legacies really amount to 3,320*l.*; then there is other leased land, and from that land we shall get ultimately 760*l.* a-year; but at present it has not arrived at its maximum, as it is only about 500*l.*: all this comes to a little less than 4,000*l.* a-year at present.

80. I believe your attention has been called to statements which have been made by the representatives of the pensioners outside as to the possibility of dealing with the revenues of the Hospital in such a way as to more advantageously increase the out-pensions rather than to increasing the number of inmates?—Yes, I have seen what they have published, and I have read about their meetings.

81. Have you any remarks to make with regard to the probability of the funds being sufficient to carry out such a suggestion?—Assuming they have a right to the funds, and that you admit the right, even then the money would be quite insufficient for such a purpose. I do not know the number of pensioners of the age of 55 and upwards who are now living, but I think that number would certainly be over 10,000, perhaps 20,000; if you add 6*d.* a-day to the pension of those men (that is 9*l.* a-year) you would bring the amount required up to over 90,000*l.* for only 10,000 men.

82. Are you prepared to give any evidence with regard to the probable value of the property, that is supposing it were realized?—Yes, I have thought over the matter and I have ventured on the opinion that 10,000*l.* an acre is the outside value; this is not mere speculation but an inference from actual valuation. In February, 1892, the London County Council wished us to give them a portion of our land for the purpose of a public garden, but the Commissioners did not see why that should be done considering it was practically a public garden at the time. However, they were disposed if possible to come to some agreement with the London County Council, and for that purpose they wished to know what was the value of 11½ acres of the ground. That piece was in an exceptionally good position, it had a double frontage, and therefore the value of that land would be higher than the value of the average of the whole, and for building purposes it would have been specially valuable because the roads were all made. Mr. Elwell, the valuer of the War Department, was employed to report on that question, and in 1892 he reported that the value of the 11½ acres, including the fee simple, was about 120,000*l.*, but at the same time he said he would not like the Commissioners to force the land into the market. However, he was of opinion that as the neighbourhood of Chelsea became more developed the value of the property as a whole would be increased.

83. *Mr. Fitzgerald.* Are you speaking now of the bit which faces Chelsea Barracks straight down the road?—Yes, but nearer to the river; it faces what they call Chelsea Gardens, and also the Embankment, and therefore it has a double frontage. Another valuation which was taken was this: about 20 years ago, or perhaps less, a plot of land, an acre and a half in extent, was let to the Industrial Dwellings Company for building purposes. It was let by Mr. Clode, the solicitor for the War Office, for 80 years, and he got the highest rent that could then be got in the building market, and it realized 500*l.* a year. From that you can assume the probable value of the freehold, which, taking it at 30 years' purchase, would bring it up to about 10,000*l.* an acre. Then there is another plot of nearly 2 acres, which is leased to Mr. Knowles; that also has a frontage on the Embankment, and was let on an 80-years' building lease, and the ultimate rental will be 760*l.* a-year, which will also bring it up to about 10,000*l.* an acre. Of course the price of those small lots is not an average price for the whole, because if you let the whole estate for building there would be an enormous waste necessary on the construction of roads, which I believe builders always put down at about 25 per cent. of the area.

84. *The Chairman.* What is the total acreage of the property?—About 66 or 67 acres, including those 3½ acres let upon lease.

85. Has any practical alteration taken place in the quantity of land since 1872?—Practically none, because in the case of the Embankment we gave some land and we got other land.

86. Then taking a rough computation and using it in the same way as you have now been doing, what would you say would be the possible value of the property?—I should think about 500,000*l.* is the outside value. I may mention that last week I had a conversation with a gentleman who told me that he thought the value would be 400,000*l.*, or a little more, on a report made to him by a professional person.

87. Then any benefits which the out-pensioners might receive in the case of the sale of this property could not be larger than might be derived from such an outside amount as you have quoted?—No, unless you continue the in-pension vote.

88. But putting that out of the question and dealing with it as to how far this property, if sold, might be made available for subsequently increasing the out-pensions as some people propose. I presume that the limit that could be derived would be the sum received for the property with the addition of the present revenues?—I should say about 20,000*l.* a-year, which would include the 4,000*l.* entirely independent of the Parliamentary vote.

89. Can you say how far it would be possible to increase the sum given in out-pensions by means of that amount?—To do that, I should want to know, first, how many pensioners are living of the age of 55. But supposing there were, as I have already said, only about 10,000, and suppose you gave them 6*d.* a-day each, that would require over 90,000*l.* a-year; so that the 20,000*l.* a-year which I assume would really be obtained would give even that small number of men less than 1½*d.* a-day.

90. Can you speak with regard to the terms under which the legacies to the Hospital were left, that is to say, whether they were left with any limiting terms?—The Drouly legacy was left to be applied "for the use and benefit of the pensioners of the Hospital." What I presume Colonel Drouly had altogether in his mind was the in-pensioners, and not the out-pensioners.

91. How much did he leave?—About 25,000*l.*, but a good deal of that has been spent in purchasing land at different times, and now the amount of stock is only 8,800*l.*

92. May we understand from the terms of that

legacy that it was really left for the Hospital, and not for the use of pensioners inside or out?—I should think he meant the Hospital; it says to be applied to the use and benefit of the pensioners of the Hospital.

93. *Sir A. Haliburton.* That will be a disputed point, because all the pensioners are called Chelsea Hospital pensioners, are they not?—Yes. The Ranelagh legacy was left for the purpose of buying great coats for the pensioners, and is so applied now. The Stuart legacy was left for the general purposes of the Hospital, that is not a large sum, 3,600*l.* by accumulations. Then there was another legacy left by De La Fontaine, but that has been combined with the Ranelagh legacy under the order of the Court of Chancery. Other legacies were of trifling sums.

94. Was not the Ranelagh legacy mostly lost in the South Sea speculations?—Yes, and in order to maintain the intention of Lord Ranelagh's bequest the De la Fontaine legacy was combined with it so as to provide sufficient money for the greatcoats. The land belonging to the Hospital amounts in all to about 66 or 67 acres, and 27 acres of that was given by Sir Stephen Fox which he bought for 1,300*l.* and then gave to the King for the use of the Hospital. That was bought from his own money. The land was for the purpose of maintaining the in-pensioners at Chelsea. Then coming down to the latest acquisition, 3 acres were purchased from the Crown in 1858 for 16,500*l.* out of unclaimed prize money; that prize money was the property of soldiers existing at some time or other, but it is certainly not the property of soldiers living now. In 1857 another 3 acres were purchased from Mr. Brett also out of the unclaimed prize money.

95. *Mr. Fitzgerald.* You mean unclaimed prize money, not deductions from prize money of individuals?—Not deductions. In 1843, nearly 5 acres were purchased for 11,900*l.*, with money taken from the Drouly legacy, from the Grand Junction Water Company. In 1826, 6 acres and 3 roods were purchased for 9,000*l.* also with money from the Drouly legacy. In 1742, 4 acres were purchased from Lord Ranelagh's estate out of money taken from his own legacy; 20 acres were purchased in 1682, and 8 acres in 1685, with money taken from the general fund, formed partly of the deductions from the soldiers' pay. Therefore, most of the present area belonging to the Hospital has been provided out of funds to which the soldiers made no contributions, voluntary or otherwise, and consequently upon which those now living have no pretence of a claim. About one-half of the Hospital lands are held under title deeds, which the Commissioners possess on account of having purchased the land themselves. The rest of the land was purchased originally in the name of the King, and there are no title-deeds to that. Under the Land Act, passed in 1875, this land was given to the Commissioners under Parliamentary title, "In trust for the said Hospital for ever, and for the purposes of the said Institution." (38 and 39 Vic., cap. 98, 1875.)

96. *Mr. Ellis.* With regard to the 27 acres which I understand from you came from Sir Stephen Fox, is there any ground for the suggestion that that land was purchased by him out of money that he had received in his capacity as Paymaster-General for the public service?—It is supposed that Sir Stephen amassed a sum of about 200,000*l.* by the deductions from the soldiers, and I daresay the 1,300*l.* did come out of that, but not professedly of course. He received that money as profit for his transactions connected with paying the Army.

97. Do you mean the money with which he purchased the 27 acres?—I do not know where he got that particular sum from, but it was his own money.

98. You are quite clear that the 1,300*l.* with which Sir Stephen Fox purchased the 27 acres of land which he afterwards conveyed to the Hospital was his own money?—Quite.

99. *Sir A. Haliburton.* I think in some of the earlier papers it says that the King "out of his generosity" gave so and so, and somebody else "out of his generosity" did the same?—Yes; we have a lot of contemporary history upon the subject.

100. *The Chairman.* Without going into any legal argument with regard to the exact purposes for which the lands and the endowments were given, I conclude from what you say that at all events there is nothing in the question which gives to those outside pensioners a right to claim that the property ought to be used in a way different from the present?—No, I take it that no one has a claim to a pension outside the rates granted by the Royal Warrant.

101. If it affected the question in any way it would rather affect it in the direction of keeping these revenues for the Hospital and not devoting them to the pensioners outside, would it not?—Yes, they were intended for that purpose and so was the land.

102. *Sir A. Haliburton.* I suppose under the original intention it was thought the place would contain all the pensioners?—Yes; when the Hospital was first started there was no idea of out-pensioners, but it was found necessary almost immediately to provide for a few.

103. I think it was not till 1703 that out-pensions were fixed; before that temporary pensions were awarded, were they not?—I cannot say, but I know that while the Hospital was being built, a large sum of money was expended in supporting the men, and then when the place was opened it was found that they could not admit all the men.

104. With reference to the prize money, I see by the Acts that that was to go to the general benefit and services of the Hospital?—Yes.

105. Was not one of the services of the Hospital the payment of pensioners; that prize money was used for paying out-pensions, was it not?—Yes.

106. Was it devoted to any other purpose not belonging to the Hospital?—No.

107. It was never taken away to the Exchequer?—Yes, in about the year 1840, I think the cash balances at the close of the year were taken over, as they are in cases of public monies taken over now, into the Exchequer, but it was not noticed for some years. When the attention of the Treasury was directed to the fact, they said, "We admit it was an error; we are not prepared to pay it back now, but when the money is required we will consider any applications from you as to refunding it."

108. Did they use some of that prize money to pay out-pensions with, or was it in excess of the requirements for out-pensions?—So much money was voted, and as it was found not to be sufficient they took some of the prize money, for instance, 100,000*l.* at one time.

109. Was not that regarded as one of the services mentioned in the Act for Chelsea?—It is not mentioned specifically, it is a matter for inference; the prize money was to be devoted for the general purposes of Chelsea Hospital, for both classes of pensioners, doubtless.

110. Since then there have been special votes of Parliament for more than 41,000*l.* for out-pensions?—Yes, they have voted more than one and a-half millions a-year for a long time past.

111. Supposing that had not been taken for the Exchequer you would have expended it upon the out-pensioners in the course of time, would you not?—I cannot say, because since that money was taken over we have had prize money in large sums, but not devoted to out-pensions.

112. Of the 578,000*l.* received for prize money, a good deal must have been spent for paying out-pensions?—Yes, large sums have been spent.

113. Then might not this 40,000*l.* have been similarly spent?—It might have been so.

114. *Mr. Fitzgerald.* I understand you have never applied for that to be paid back by the Treasury?—We have not applied for 40 years and upwards, because the money was not required. But they might have given the interest upon it. The Indian Government once claimed the greater part

of the existing balance of prize money, and Lord Hartington, when Secretary of State for War, admitted the claim and so also did the Treasury, and it was ordered that a certain amount of the money should be transferred to the Indian Government, but the Commissioners thought the Secretary of State and the Treasury had exceeded their powers, and after a long correspondence, which spread over some years, the claim of the Indian Government fell through and has not been carried out.

115. *The Chairman.* With regard to the tables in this book, may we take it that down to 1846-47 the fifty millions voted include the annual vote in aid of Chelsea itself?—Yes, I think so; the Army Estimates show the items which make up the votes.

116. At all events, with regard to the cost for this year, the total of the Parliamentary figures comes to 22,400*l.*?—Yes.

117. That is a larger amount than that received from any other source?—There is no other source except the 4,000*l.* received from legacies and the prize money.

118. And the total for Chelsea alone, putting the out-pensions out of the question, is far larger than the sums which were received for poundage and contributions from the forces, is not that the case?—For the last 30 years the grants from the Exchequer have averaged more than one million a-year, and that means that more than thirty millions have been spent upon pensions during that period, out-pensions and in-pensions.

119. If these sums had not been received from the poundage and from deductions from the forces, the grants from the Exchequer would have had to be larger still?—Yes, but there have been no receipts of this kind for many years.

120. And the Exchequer grants have always been sufficient to make up the surplus required for the management of Chelsea and the out-pensions?—Yes.

121. Therefore can it be said that the State has not a complete right to deal with Chelsea as it thinks fit?—No.

122. *Sir A. Haliburton.* When did Chelsea cease to pay the out-pensions?—About 1842, I think.

123. Up to that time you used the prize money towards carrying out that service?—We did not use the prize money of our own motion, we were ordered to do that by the Secretary of State for War on a warrant from the King, and we had to transfer a sum of 100,000*l.* at a time.

124. In the last column but one on page 27 of this History of Chelsea Hospital, it shows, "Transfers to Exchequer," is that transfers of prize money?—Not transfers, but actual expenditure so entered to balance the account.

125. Where is the expenditure of the prize money shown?—There is no separate expenditure of prize money shown. Those transfers were made to the fund for the general support of the Hospital, both in and out-pensions.

126. I understand that you have now about 80,000*l.* of unclaimed prize money?—Yes.

127. Why was that not spent upon out-pensions?—Because the Secretary of State for War was good enough to provide all the money required for the out-pensions. If he had said, "You do not require all this prize money, I think you should give 50,000*l.* of it for the reduction of the Votes," he would have got it probably, but the dividend is actually expended.

128. That was done up to a certain time, but when did it cease, and how did you get your 80,000*l.*?—That 80,000*l.* is mostly an accumulation from the Indian Mutiny prize money, and was got at a later date than the dates shown in that book; I went into the details some years ago, and I found that 40,000*l.* of that sum was derived from the Indian Mutiny funds.

129. *The Chairman.* Was not an Act of Parliament passed, laying down that prize money in future should be dealt with in a different way to that in which it had been dealt with in the past?—No, the last Act was the Act of William IV., a consolidation Act, of 1832.

130. As I understand it, your contention is that if the Secretary of State for War chose to say, "I will not put down so much for you in the Estimates," then you would have to meet your requirements by spending some of that prize money, as in the old days?—If he called upon the Commissioners to give him 50,000*l.*, the Commissioners would have no power to resist him, but the services supported now from the dividend would then require other support.

131. *Sir A. Haliburton.* Did not the Commissioners pay away the prize money without an order from the Secretary of State?—No, not for out-pensions.

132. Did they get special orders when they dealt with these large sums of prize money, beginning with the year 1810?—I should say they did get special orders.

133. Will you look into the subject and see when you got your last order?—Yes.

134. *The Chairman.* I see that for the years 1837–38, 1838–39, 1839–40, and 1840–41, there are no transfers of unclaimed prize-money shown, why is that?—There was probably no balance available. It was necessary to hold a sum always available to meet claims, and I presume at that period there were no sums available for Hospital expenditure.

135. It looks rather as if some accumulation was going on, or as if a different policy were being pursued?—I will look into the matter. When the Commissioners had to pay the out-pensioners they had to undertake to meet the expenses of payment, and if their funds got short of the Parliamentary votes they had to take some of their other money so as not to show their balance on the wrong side. Some of the Officers at Chelsea got allowances from the prize fund, and some still do.

136. Is that in the Act?—No, it is under the general authority and with the consent of the Treasury The present Secretary gets 200*l.* out of the prize fund

137. *Sir A. Haliburton.* For conducting prize fund duties?—No, there are no payments made for that. I, myself, get 100*l.* a-year from the prize fund, and that sum was assigned before I took over my duties.

138. Was not that money allowed because you would probably have to carry out some of those duties?—I think not.

139. Who does the prize fund duty?—I do it all myself personally, but it is a very small thing, and I have never received any payment for doing it, nor has the Secretary. The salaries were simply considered inadequate, and, therefore, they were supplemented out of the prize fund.

140. Out of the income arising from the accumulated prize fund?—Yes, out of the interest, not out of the capital sum.

141. Is not that quite a different thing?—We do not make any difference between capital and interest. When the dividends accumulate we re-invest them.

142. You see the point I am anxious to get at; which part of the fund do those salaries actually come from, because there might be some principle which would prevent the prize fund from being devoted to ordinary purposes?—We make no distinction between the two things. We have had no prize money since that granted for the Indian Mutiny of 1858, the last of which reached us about 1866.

143. It appears that the Prize Act provides for it?—Yes.

144. Do you deal with the naval prize money?—No, but we have paid prize money to the Marines when they serve on land, because they are then looked upon as soldiers.

145. *Mr. Fitzgerald.* In the last paragraph but one, on the first page of the preface to this early History of Chelsea Hospital, it says, "From the evidence now collected, it will be seen that while the project had its origin in the foresight and humanity of Sir Stephen Fox (the first Paymaster-General), the requisite funds for carrying out his design were almost entirely provided by the Officers and men of the Army itself." What construction do you put upon that?—I do not agree with it at all.

(*The witness withdrew.*)

THURSDAY, 5TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr JOHN E. ELLIS, M.P.
Mr. R. K. CAUSTON, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Mr. W. PUNTER, *examined.*

146. *The Chairman.* You are the President of the Royal Chelsea Hospital Army Age Pensioners' Association, I believe?—Yes.

147. For how long have you been President of that Association?—Ever since its formation in April, 1892.

148. Were you appointed President at a general meeting of the Association?—Yes; I was first of all asked to accept the presidency, and then, after considering it for a month, I consented.

149. You, therefore, come here as representing the views of your Association?—Yes, certainly.

150. Has there been any formal resolution of the Association authorizing you to come here?—There have been meetings, and myself and others have been properly authorized to come here, but as the notice was so short, one of our number, Mr. Martin, has been unable to come.

151. Are you a pensioner?—Yes. When I retired from the Service I was a 1st class master gunner in the Royal Artillery. My pension is 4*s.* a-day.

152. Are all the members of your Association pensioners?—Every member, except the honorary members, is a life pensioner to the best of our knowledge.

153. How many members have you?—Somewhere about 5,000 regular members of the Association.

154. Is the Association confined to any one part of the country, or have you branches in all districts?—It is spread all over England, Ireland, Scotland and Wales. In addition to those regular members who pay a subscription of 1*s.* a-year towards the expenses of the Association, we have some 7,000 or 8,000 names of men who have only small pensions, and who are unable to subscribe that small amount a-year. So that practically there are about 12,000 pensioners who wish to see a change in the present state of things.

155. *Mr. Fitzgerald.* How do you know that?—By our correspondence.

156. But I presume you correspond only with your regular members?—No, we have also had correspondence with the 7,000.

157. Are the letters in existence?—No, we have not thought fit to keep all the correspondence; we are only poor men, and we have no office for that purpose.

158. *The Chairman.* What is the object of your Association?—To secure an old-age pension in addition to the Army pension.

159. Is it purely for that, or has your Association other objects in view?—Our object is to secure that the large amount of money now spent upon Chelsea and Kilmainham should be used for the benefit of the pensioners rather than for its present use; we have no other object than to benefit pensioners throughout the country.

160. I believe you understand the object of this enquiry and the two points the Committee have to keep in view?—Yes. I have here a statement drawn up with the consent of our Association, and it gives generally our views as pensioners; may I read it to you?

161. If you please?

THE ROYAL CHELSEA HOSPITAL ARMY AGE PENSIONERS' ASSOCIATION.

My Lord and Gentlemen,

1. This Association was formed in 1892 for the purpose of obtaining an Army age pension for Army life pensioners. It is taken for granted from the evidence given by Major-General G. Hutt, C.B., then Secretary of the Chelsea Hospital, also from that of Field-Marshal Sir P. Grant, G.C.B., &c., now Governor of Chelsea Hospital, that there is no doubt that the Hospital lands belong to the Army, and are held in trust by the Commissioners for the benefit of the pensioners.

2. These statements we take to be equally applicable to the estates at Kilmainham. The ownerships of these estates having been established, the pensioners claim that as circumstances have changed, they have a right respectfully to ask, and to expect, that the administration of these estates should be so ordered as to produce the greatest amount of good to the largest number of pensioners; at present they contend this is not the case, and are therefore dissatisfied with the way these properties are now administered.

3. A perusal of the Army Estimates for 1894–95 has revealed the following figures relating to Chelsea and Kilmainham:—

	£	£
Total cost as per Estimate, page 229	32,900	
Fuel, light, furniture, &c., about	10,000	
Additional expenditure	3,439	
Total		46,339
Actual cost as per Estimate, pages 14, 15, 16, of the in-pensioners for pay, provisions, and clothing	18,800	
Add to this for fuel, light, &c. (which more than cover the actual expenditure on the inmates)	2,200	
Total		21,000

	£	s.	d.
Towards this 21,000*l.*, the annual surrendered pensions by the men, amounted to	10,848	9	2
Add to this the annual income from unclaimed Army prize money, legacies, &c., which belong to the pensioners, about	5,000	0	0
Total	15,848	9	2
After deducting the 15,848*l.* 9*s.* 2*d.* from the 21,000*l.* provided by the in-pensioners themselves, and the money which belongs to the pensioners in general, we find that the pensioners are an expense to the country of only	5,151	10	10

If a fair rent were paid for the grounds, buildings, &c., now used for Government and other purposes (for instance, the General's and the Staff Officers' quarters, offices, gardens, &c., in Dublin; Burton's Court field, said to be about 11 acres; a rectangular plot at Chelsea, with good roads all round, let at the nominal rent of one shilling a year) it would more than meet the 5,151*l.* 10*s.* 10*d.* Thus it cannot be considered that the 678 pensioners cost the taxpayers of the country one halfpenny.

4. The Army Estimates of 1892-93, show that at Chelsea 95 paid officials are employed, assisted by 77 in-pensioners, who are receiving extra pay, thus showing that 172 persons are employed in caring for 440 men, or one to rather less than three inmates. At Kilmainham there are 20 paid officials, assisted by 17 in-pensioners, thus showing that 37 persons are employed in caring for 120 men. The above does not include the staff of company non-commissioned officers, who receive extra pay for duties performed —namely at Chelsea, 9 staff serjeants, 6 colour serjeants, 24 serjeants, and 24 corporals, with a similar proportion at Kilmainham.

5. Appendix "G," page 47, "Report of Committee, 1870" shows that about 29 acres of land at Chelsea have been alienated by order of the Crown for what purpose the pensioners are desirous of further information; but for whatever purpose these lands have been applied, the pensioners consider it to be their property. With regard to Kilmainham, there has been a reduction of inmates, from 450 (the original establishment) to 140; the quarters thus vacated are now appropriated for the use of the General Officer Commanding the troops in Ireland, Officers of his staff, offices, &c. Two acres of land on which Island Bridge Barracks are built, belong to this estate, and 21½ acres of land sold to the South-Western Railway Company at Dublin, for which 6,000*l.* were paid into Court in January, 1846, but our Committee have been unable to find how the funds of the Hospital have benefited by these transactions.

6. From these Hospitals there have not only been an alienation of lands, and a misappropriation of buildings, but from the report of the Committee on these Hospitals of 1870, Appendix "R," General Hutt states that from 1808 to 1835, no less than upwards of 1,000,000*l.* sterling was taken in aid of the votes, from deductions made from out-pensioners, also in the report of Committee of 1883, page 185, Sir P. Grant, the present Governor, states, "Allusion has been made to plans originally framed for providing a fund for the support of the pensioners in these Hospitals. These were successful. The soldiers' own money gave this fund also; but it has disappeared, and in this way. Confining myself to the unclaimed shares of prize money, given by law to the Hospital, not a penny of which came from Parliamentary funds, a sum was accumulated, which would now, if intact, give a dividend sufficient for the whole of the expenses, but in former years, successive Governments abstracted it in aid of weak Budgets." Therefore the pensioners hold that the Government annual grant voted by Parliament to these Hospitals is only part interest on money which has been extracted from their funds.

7. In November, 1892, the question of the sentiment of the Army with reference to these establishments was raised, and in the early part of 1893 the Central Committee sent a circular to every regiment, battery of Artillery, company of Royal Engineers, Medical Staff, Army Service Corps, and depôts, and from the answers received the pensioners know now that the wishes of the men serving for a pension is in accord with the pensioners themselves. The pensioners wish to point out that these lands, both in London and Kilmainham, belong, not to the War Department, but to the pensioners for whom they are held in trust, and that therefore the pensioners have a perfect right to make the best bargain they can for themselves; further, so far as concerns the open space and pleasure ground, the pensioners hold that the primary object of these establishments is to benefit pensioners, not to give opportunities of recreation to the inhabitants of the Metropolis.

8. The question of the need of these Hospitals in case of war has been raised. Our answer is that the Government and the Commissioners have no equitable right to withhold from the pensioners the benefits accruing from these estates in anticipation of an imaginary want which has not arisen during the past 200 years. In fact, it was during the most severe war of the present century that the establishments were reduced by 310 inmates; moreover, an attempt was made in the year 1834, and again in 1853, to close Kilmainham, and in 1892 it was ascertained that at the War Office a scheme was actually being promoted—

(1.) To sell Kilmainham.

(2.) To close Chelsea for in-pensioners, and turn it into a military invalid hospital.

(3.) To close Netley Hospital, and use it as a barracks.

9. It is estimated that there are 20,000 pensioners over 55 years of age (at which age their claims are considered for admission) all having an equal claim upon these Hospitals, but as there is accommodation for only 678 men, viz., Chelsea, 538; Kilmainham, 140, therefore, less than one man out of every 30 within the age limit receives any benefit; but, as about 80 per cent. of the pensioners are married, and cannot make a separate provision for their wives and families, they are debarred from participation in the benefits. Yet the Pensioners' Committee fail to find any argument against the fact that these 80 per cent. are equally entitled to share in the funds of these establishments (both by reason of their service rendered to the country, and general good conduct while serving, as also by their good character and thrift as citizens in civil life), with the other 20 per cent. of unmarried men from whom the 678 inmates are chiefly selected.

10. Seeing that 24 acres of land at Kilmainham and 29 acres at Chelsea have been alienated from the estates, and that restitution appears to us impossible, and that these lands, if now intact, would produce at least 30,000*l* per annum, based upon a similar calculation to the annual income of the remaining lands by the plans of the ground showing how they could be laid out, and what the ground-rent would produce at Chelsea (these plans having been carefully prepared by Messrs, Penny & Clark, auctioneers and valuers, of Portsmouth), also that the million of money abstracted from the funds of these Hospitals, at common interest (2½ per cent.), would give 25,000*l.* a-year, the pensioners not only ask that the present annual grant should be continued (*vide* page 229, Army Estimates, 1894-95), but that the grant be increased to 50,000*l.* per annum. This would only mean an annual increase by the Government of 7,100*l.*

Thus the annual income would be as under:—

	£
Parliamentary annual grant ..	50,000
Chelsea estates	69,705
Kilmainham estates	10,000
Legacies, &c.	3,295
	133,000

This 133,000*l.* would give 6*d.* per diem to 14,575 men, or 4*d.* per diem to 21,862; but the Pensioners' Committee recommended the adoption of the former in preference to the latter. The oldest pensioners to have the first claim, irrespective of rank or position.

11. The Pensioners' Committee feel that it would be unadvisable to throw the whole estate at Chelsea into the market at once. To realize the highest value, the development of the scheme now proposed should be gradual; for instance, Burton's Court field could be first disposed of; that portion facing Chelsea Barracks could then be brought forward; then that part on the Embankment might be dealt with before the Hospital was finally closed. The pensioners see no reason why the estate at Kilmainham should not be dealt with in a somewhat similar manner.

12. As regards closing the Hospitals, the Association would recommend that, as pensions since the year 1881 have been regulated by Royal Warrant, this business be transferred from Chelsea to the War Office.

(*a.*) That no further appointments of Officers be made.

(*b.*) That no further admittance of pensioners takes place.

(*c.*) That all in-pensioners who wish to leave may do so at their own convenience, receiving 1*s.* per diem in addition to their original pension. None to receive less than 2*s.*

(*d.*) That as soon as it becomes necessary for the further development of the scheme, that the Hospital should be finally closed; all in-pensioners remaining should be transferred to military hospitals on similar terms to those upon which the naval pensioners are admitted to the naval hospitals.

(*e.*) The claim of the Officers, who by virtue of their appointment have a life interest in these Hospitals, in each case should be considered on its merits.

13. Relating to the Boards of Commissioners of Chelsea and Kilmainham, the Pensioners' Association would greatly fail in their duty if they did not bring to the notice of this Committee their entire want of confidence in the Board of Commissioners as at present constituted, seeing that in 1834, and again in 1854, steps were taken totally to close Kilmainham; and in 1892 a scheme was prepared to close both these Hospitals, and it appears this took place with the full knowledge of the Commissioners, without, so far as we are aware, any equivalent being proposed on behalf of the pensioners. Therefore the pensioners consider and strongly urge that a new Board of Directors be consituted to look after the interest and management of these estates; and the Pensioners' Association would most respectfully suggest that the new Board should consist of three Members of Parliament, three military or departmental members, and three representatives from the pensioners; the appointment in each case to be made by the Secretary of State for War; the pensioned members to be selected by the pensioners, their names being submitted to the Secretary of State for War for approval. This Board to have full control as to the disposal of the estates to the best advantage of the age pensioners, and to be responsible for a correct account being supplied to Parliament each year.

We are,
My Lord and Gentlemen,
on behalf of the Committee,
Yours most respectfully,

W. PUNTER, *President*,
Pembroke Road,
Portsmouth,

M. VAUGHAN, *Secretary*,
Knox Road, Stamshaw.

PORTSMOUTH,
5th July, 1894.

162. Was that memorandum submitted to a Committee of Management of your Association, or to the General Association, and approved by them?—It was drawn up by a General Committee from Devonport and Portsmouth, and then submitted by them to the Central Committee, which consisted of myself as President and 24 members, and it was approved by us as representing the whole of the Association. Our object was to keep the contents of this paper quiet until it had been produced to this Committee, so that the Committee might have it first hand. We have had this plan [handing in the same to the Committee] drawn out, showing how the ground at Chelsea could be laid out and developed in order to produce the best return for the pensioners throughout the country, and here is the report which accompanies and explains that plan, may I read it?

163. If you please?—

"The Auction Mart,
"King's Road, Southsea,
"4th July, 1894.

"*Re* ROYAL CHELSEA HOSPITAL, CHELSEA.

"Dear Sir,

"In accordance with your instructions we have inspected this property with a view to advising you as to the best means for developing and realizing the same as a building estate, and beg to report as follows: We consider the site from its position and surroundings a most valuable and unique one for the erection of high-class residential properties. The estate possesses a very long frontage to the Chelsea Embankment overlooking Battersea Park. The property erected on adjacent land upon the Embankment is of a very costly and palatial character, and we find that as the leases on the adjoining estates are now falling in the properties are being pulled down, and very valuable mansions are being erected, such as those in Lower Sloane Street, Sloane Gardens, Draycott Place, Pont Street, Cadogan Place, &c. We should recommend the estate being laid out in the manner shown on the accompanying plan, giving an available 22,547 feet of building frontage of suitable depths, which divided into plots of 21 feet frontage throughout the estate, with the exception of those on the Embankment, which we propose should be 23 feet, a total of 1,065 plots are obtained. Judging by the ground rents upon the adjacent estates which we have referred to, we consider if let on building leases for 90 years that ground rents ranging from 150*l.* to 55*l.* per plot would be realized, giving an income of 69,105*l.* per annum, this sum showing a return of 3 per cent. upon 2,303,500*l.* The Royal Avenue, we think, should not be built upon, but developed to form a noble and imposing approach to the northern end of the estate and as this would considerably increase the value, we consider that the rentals the land in the Royal Avenue would let for upon building leases

should be added to the value of the estate, and as we estimate that ground rents amounting to 600*l.* could be obtained, this sum added to the above-mentioned figures will produce a total income of 69,705*l.*, which capitalized upon the same scale, gives a total value of 2,323,500*l.* The cost of making the necessary roads we estimate at 35,000*l.*, and that the whole of the present building materials would realize upwards of 3,000*l.* In arriving at these figures we have assumed that the whole of the property can be dealt with, including the plot facing the Embankment which we have covered with hatching. The measurements and prices given are approximate, as until a detailed survey is made it would be impossible to guarantee them. We estimate it would occupy from 5 to 10 years to develop the estate in the manner shown. In concluding our report we would mention we have not dealt with the portions leased to the Industrial Dwellings Company, and J. B. Lawes, Esq., as we have no data as to the terms of the leases upon which they are held, but upon receiving particulars we shall be pleased to advise you upon this point, this forming an additional item of value.

"We remain,
"Yours faithfully,
"PENNEY & CLARK

"Mr. W. Punter,
"27, Pembroke Road,
"Portsmouth."

I may say that with regard to the 10,000*l.* estimated as being the value of Kilmainham, that is only a very rough figure, because we have had no opportunity of getting at even the approximate value of the place, but we thought that probably this Committee would sanction the employment of some agency to draw out a plan, and give us a reliable statement.

164. Dealing very generally with the allegations made in this memorandum, I understand that so far as they relate to the funds of Chelsea Hospital having come from the pay of soldiers of the Army, they are founded on the statements made by Sir Patrick Grant and Major-General Hutt?—Yes, and the statements are taken chiefly from the reports of the Committees of 1870 and 1882.

165. I think I must correct that somewhat by asking you to refer to page 13 of the report of the Committee of 1882, where in paragraph 46 they say this, "The history of the poundage deducted from the men's pay in the 17th century is somewhat obscure. Apparently it was an arrangement made some years before the foundation of a hospital was contemplated. The money gained by these deductions was applied, partly to defray the Paymaster-General's expenses, partly to lessen the expense of maintaining the forces; in return, the men were to receive their pay regularly, and not in arrear, as they had received it up to that date, so that the result of this system was to issue the pay of the Army promptly, but at a reduced rate. When the Hospital was founded, this money was diverted from these public purposes and granted to the Hospital; it was, therefore, practically a contribution from the State. But even if General Hutt's claims could be maintained on these grounds, they have long since been extinguished by the annual grants made to Chelsea and Kilmainham Hospitals, and to Army pensioners generally, which far exceed the amount derived from stoppages or any other sources. In our opinion, therefore, the State is not in any sense precluded from dealing with these institutions, and the property attached to them as it thinks fit." That does not show that the Committee were prepared to adopt his view as to the origin of the funds?—No, but as representing the general body of the pensioners, I may say that we can hardly accept the theory that the Commander-in-Chief would appoint to those high positions two General Officers whose evidence before the Committees of 1870 and 1882 was not reliable.

166. I think you have hardly caught the intent of my question. You have said that the allegations are founded upon statements in the report of the Committee of 1882, and I wish to correct that by showing you that they are not founded upon the report, but only upon the statements made by Sir Patrick Grant and Major-General Hutt. Does not that extract I have read to you now confirm your view or not?—It would appear to give room for a difference of opinion, but to me it does not appear to disprove the statements.

167. Have you yourself in any way gone into what appears to be the facts upon which General Hutt's evidence is founded?—No, no further than his statements to the Committee. May I call your attention to his evidence as given in Questions 110 to 119, at page 5 of the evidence given before the Committee of 1870, which is as follows:—"(Q.) Was Chelsea Hospital built out of moneys obtained by stoppage from soldiers?—(A.) There is no doubt of it whatever. The land was purchased and the building erected exclusively with money raised by stoppages from the pay of the Army and by some private subscriptions. (Q.) All the 49 acres of land which you have described as Crown lands were obtained from similar means?—(A.) Undoubtedly. (Q.) Is there any account of any Parliamentary vote having been taken in the early days for sums of money for Chelsea Hospital?—(A.) No, I am now carefully searching the journals of the House of Commons for a trace of that, and as yet I have found none. It is not until after 1700 that there is any trace of any Parliamentary vote whatever, and that is for out-pensioners. (Q.) That is only 20 years after the date which you have been speaking of?—(A.) It was in Queen Anne's time, in 1704, I think, that sums were voted for out-pensioners. (Q.) 1703 I think was the date of the first pension?—(A.) No, there have been out-pensioners from the earliest date. (Q.) Was not there a poundage upon the pay of the Officers as well as upon the pay of the men?—(A.) Yes, and in addition there was a heavy deduction made from all appointments; the Governor of Gibraltar and the Governor of Hurst Castle and other places paid a very heavy duty. (Q.) Was all the 49 acres of Crown land acquired by money obtained from these sources?—(A.) Yes, and from the prize fund. (Q.) Is there any trace of any Parliamentary grant of a sum of money to buy this land?—(A.) None. (Q.) With regard to the other 13 acres, which you have mentioned, where did they come from?—(A.) They were purchased from the Drouly legacy at a cost of more than 20,000*l.* (Q.) Therefore, in fact, Chelsea Hospital may be considered as positively private property?—(A.) It is."

168. And all your statements are founded upon such answers as are there given by General Hutt?—Yes, entirely.

169. You see by the quotation I have already read to you from the report of the Committee of 1882, how some of the questions raised were dealt with by those who had an opportunity of enquiring into them as to whether General Hutt was correct or not?—If the deductions first took place for the benefit of the men, and then afterwards the payments to the men were made more regularly, and the deductions transferred to another source, we cannot see how the Government can claim the deductions.

170. Will you explain how you connect the claim which is made by the men to-day, with the deductions made from men 200 years ago?—Simply that these Hospitals have been handed down to posterity, if I may say so, for the benefit of the soldiers. In fact, I think they were one of the elements which induced men to enlist; the conditions are mentioned in their account books; but since the Government tried to disestablish Kilmainham those conditions have been left out of the account books.

171. *Mr. Fitzgerald.* You mean that one of the inducements to enlist was the probability that a man would be taken care of in Chelsea in his old age, not that he would have a right to a part of the property?

—I have not one of the old pocket books with me, but since the beginning, those conditions have been stated under the head of pensions, and, therefore, pensioners have always looked upon them as their right.

172. *The Chairman.* I think I am right in supposing, am I not, that in all your calculations with regard to the contributions of the Government towards Chelsea you have dealt only with the sums paid to the Hospital and credited to the Hospital itself in the Estimates, you have not dealt with the large sums paid for out-pensions?—That is so, we have nothing to do with money paid to out-pensioners.

173. But practically they are part of the same system, are they not?—I understand that they are quite separate accounts, the one quite independent from the other.

174. According to the Estimates, 1894-95, the Vote for Chelsea and Kilmainham is 32,100*l.*, for Chelsea and other pensioners it is 1,774,000*l.*, and then there are some smaller items, but I understand you deal only with the first item of 32,100*l.*?—Yes, that is all. I should like to add that since the early part of this century a calculated pension has been part of the encouragement to men to join, and that has been entirely outside any benefit that might accrue to them from Chelsea. The out-pension has been part of the bargain made with the man when he enlists, besides the chance of going in Chelsea, and I do not see how the two can be combined.

175. *Sir A. Haliburton.* Then why do you think an out-pensioner should get what at Chelsea is provided for the in-pensioner; you are claiming for the out-pensioner what the Government has for the in-pensioner, but upon what grounds?—That it seems to us to be an additional perquisite handed down from our early forefathers.

176. You think the soldier of to-day inherits the property of the soldier of 200 years ago?—According to the statement made by General Hutt, and supported by Sir Patrick Grant, I think we have a right to inherit that, and if the soldier has not that right then, as pensioners, we think it ought to be made fully known to whom it does belong. We contend it is the pensioners' property.

177. You exclude the Officer of the Army altogether?—Paragraph 12 in our paper says that each Officer's rights should be considered on its merits.

178. You mean to the Hospital funds?—Yes.

179. Was the Hospital built entirely from contributions from the pay of the men?—Not at all; but I do not make out whether the Officers contributed with a view to their receiving a benefit, or only with a view to benefitting their men. We know that to-day Officers contribute to a hundred-and-one things for the men, and we assume that their contributions were given largely, if not altogether, in that way then.

180. Have you ever followed out the question to see whether the men's pay really did contribute anything?—No, we have had no opportunity of doing that. On the 12th April we wrote to Chelsea, and also to Kilmainham, asking to be allowed to view the hospitals and look over the ground, as well as to see any historical work relating to these establishments that might be in the library. Chelsea treated our application with silent contempt; but we received this reply, dated 14th April, 1894, from Kilmainham: "In reply to your letter of the 12th instant, I am desired by the Governors of the Royal Hospital to inform you that they are unable to afford you any greater facilities than those afforded to the general public, namely to see the outside of the building, and view the Royal Hospital and chapel." That will show you what little information we have been able to obtain outside the Committee's reports.

181. *The Chairman.* With reference to the 29 acres mentioned in paragraph 5 of your paper, may we take it that that is made up of the 25 acres which have been alienated as shown in the pages of Appendix G, together with the land leased to Sir William Gordon?—Yes. We take it that the ground was given up by permission of the Commissioners, and with the authority of the Crown, and, therefore, we take it that the Crown was responsible for that.

182. *Mr. Causton.* But in this appendix it states that the land is simply leased?—Yes.

183. *The Chairman.* In paragraph 8, you allude to attempts that were made in 1834 and 1853 to close Kilmainham, and then you go on to say that in 1892 it was ascertained that at the War Office a scheme was actually being promoted to sell Kilmainham, close Chelsea, and also Netley Hospital, where did you get that information from?—We got it from a book issued in Dublin, and compiled by Major Childers, and entitled "Kilmainham." I bought a copy of that in Dublin when I went there to see the property. I think those facts are also referred to in a paragraph in the Report of 1870.

184. I am rather referring to what is stated about 1892; what is your information with regard to 1892, is it official, or only hearsay?—It appeared in a paper, and then we took steps to write to see if the information was correct.

185. To whom did you write?—To the editor of the paper. I also wrote to the Secretary of State for War, and I attached to the letter a copy of the statement to which I refer. I know that "Modern Society" is not a very reliable paper, so I wrote to the editor, asking him if his information was accurate, and when his reply appeared, I sent both statements to the Secretary of State for War In the paper "Modern Society" for 19th November, 1892, there appeared this statement, "If the scheme that is being developed at the War Office be carried into effect there will be some chance of the Army pensioners coming to their rights. It is proposed to sell Kilmainham, but to convert Chelsea from a pensioners' into an invalids' hospital, thus superseding Netley, while Netley is to be converted into barracks for the reception of a battalion on return from the tropics. The scheme is an admirable one, but as the Government so miserably plundered the sailors when they closed Greenwich Hospital, it will be necessary to watch the mode in which they operate on Chelsea." After reading that I wrote to the editor asking him if that information was reliable, and in reply there was this paragraph published in that paper of 3rd December, 1892: "A military correspondent who is interested in the proposed reform, whereby the Army pensioners will be increased in number, pays us the doubtful compliment of asking whether our information as to the proposed utilization of Kilmainham and Chelsea Hospitals, given in our issue of 19th November is reliable. The information, so far as it went, is absolutely trustworthy; such a scheme as we shadowed out is actually under consideration, but we are not bold enough to predict for its absolute success. It is a good scheme, and one that contains but few blemishes, but the goodness of a scheme is generally the precursor of its failure. We hope it will not be so with the present one for the Army pensioners."

186. Then may we take it that your statement in this paragraph is founded upon what appeared in "Modern Society"?—Yes, qualified by the answer given in the same paper and subsequently submitted to the Secretary of State for War, and which he did not contradict in any way. He simply acknowledged the receipt of the letter.

187. I rather gather from paragraph 9 that a Complaint is made of the Hospitals being able to accommodate so few pensioners, do you think it would be at all satisfactory to those whom you represent, supposing it were possible to enlarge the accommodation of these Hospitals so as to take in a larger number of men than at present?—That view has not been taken by the pensioner. His view is that if the property were turned into a more useful form the money so obtained would be more useful to him than the present arrangement.

188. With regard to the Messrs. Penney & Clark referred to in paragraph 10, have they any business

in London?—Not that I am aware of; we preferred to employ people who would be outside the influence of the County Council, or anyone in London.

189. Have they any experience of London property?—I understand that they have based their valuation upon a radius of 1 mile round Chelsea.

190. How did they get at the value of property within that 1 mile radius?—By judicious enquiry.

191. Then that valuation is founded upon what was represented to them, by other people, as being the value of property within the mile radius?—Yes, as they had not access to official information the figures are only approximate ones.

192. But the amount of 69,705*l.* shown as the annual income from the Chelsea estates represents, I presume, the interest on the total sum that would be acquired if the property were sold?—It represents the ground rent that would accrue if the land were let on building lease. We think that would be a better security than if the land were sold outright, and the money put out to interest.

193. In addition to that you take the Parliamentary grant at 50,000*l.*, but that is more than the Parliamentary grant of this year?—Yes, but only by 7,100*l.*

194. Am I to take it that you only increase the votes by 7,100*l.*?—Yes.

195. Kilmainham estates you put at 10,000*l.*?—Yes, but we have no distinct authority for that, we could only base it upon verbal statements we received in Dublin. We have no funds to enable us to have that estate valued, but we should be glad if this Committee would allow the pensioners to employ an independent valuer so as to get an estimate.

196. Then at present that estimate is only a guess?—Yes, based upon verbal statements made to us by builders in Dublin.

197. *Mr. Fitzgerald.* Do you know their names?—Yes, but I should not like to mention them.

198. *The Chairman.* Do you know the area of the Kilmainham property?—42 acres, I believe.

199. Are you aware that some of the legacies to Chelsea were so left that questions have arisen as to whether they were not left specially for the purposes of the Hospital?—I am not aware of that, but we do think this; that if they were left purposely for the use of the Hospital, it would practically mean for the pensioners, and if the value of the legacies were transferred and still held for the benefit of the pensioners, that would be an equitable thing.

200. I rather gathered from you that you thought the sum spent for out-pensioners and the sum spent for the Hospital were to be kept separate?—The whole purport of our paper is that an age pension should be established apart from a life pension.

201. It seems to me you change your ground when you say you may take money which was left for the hospital and not for the purpose of out-pensions?—I presume there would be one scheme for the whole thing, and there would be if what we have propounded is accepted, but if the land were transferred in any way it would mean an alteration of the whole scheme.

202. Does your scheme make any provision for those infirm old men who have served their country well, but who have no friends, and who now find an asylum in Chelsea in their old age?—Yes, section (*c*) of paragraph 12 says, "That all in-pensioners who wish to leave may do so at their own convenience, receiving one shilling per diem in addition to their original pension, none to receive less than two shillings." It was thought that a man having been once admitted had a life claim upon the Hospital, but we know that a large portion of them would be glad to leave if their pensions were increased sufficiently to enable them to live somewhat easily outside. In section (*d*) we say that all in-pensioners remaining should be transferred to military hospitals on terms similar to those under which naval men are transferred to the naval hospitals. We did not think it wise to go into the detail of that, but any additional expense caused by that would naturally, I presume, come out of the estate, the same as any additional cost for a naval man comes out of the Greenwich estate now. Netley is seldom half full now, and it is not very likely that there would be more than perhaps 100 of those who on account of their infirmity could find no other asylum outside.

203. Section (*c*) deals only with the present race of in-pensioners, but are we to understand that you would like to enlarge the scope of (*d*), so as to make it refer also to the future, and to those who, in time to come, might, on account of their infirmity, require some asylum?—No.

204. Then how do you propose that those men should be dealt with. I am leaving out of consideration the present in-pensioners whom you say you can deal with under (*d*), and I want to know what your proposal is with regard to the future when you have a similar class of men who cannot find a home for themselves, and who would otherwise go to Chelsea?—We think, if every aged man got 6*d.* a-day added to his life pension, he would be comfortable and content, and would not require any asylum. If that were done, we think that a very great number of men who now help to fill our workhouses would remain out.

205. Would not the inevitable result be that a great many of those men would go into the workhouses?—We think not; we think 6*d.* a-day extra would clear our workhouses, and clear the country of the present disgrace.

206. *Sir A. Haliburton.* Your idea appears to be that the man who is a cripple and completely incapacitated should get only the same as a man who is able to work for himself?—Very few men after they arrive at 55 or 60 are able to add to their out-pensions.

207. But they are able to take care of themselves?—95 out of every 100 are able to do that up to a few days of their death.

208. You make no provision for the other five who are not?—We think it is not necessary.

209. *The Chairman.* Supposing the funds ultimately available were not so large as you have put them down here at, and supposing only a much smaller sum than 6*d.* a-day could be added to the present out-pension, what would be your opinion then?—Our opinion would be that the oldest soldier ought to have the first claim, and if an age pension is established it should not be less than 6*d.* a-day.

210. You think 6*d.* is the smallest amount that ought to be added to the present out-pension?—Yes.

211. And if the funds available were not large enough to give 6*d.* to a greater number of men, then the lesser number should receive it?—Supposing there were 15,000 men over 55 years of age, and there were only funds enough to give 6*d.* a-day to 10,000 of those men who were over 60 years of age, then I say it would be better for the 10,000 over 60 to have the money rather than make it less than 6*d.*, and spread it over the whole 15,000 over 55.

212. Supposing the fund was only sufficient to give it 5,000 out of the 15,000, would your opinion still hold good?—Yes, keeping in view the oldest men.

213. When you state that you think an extra 6*d* a-day will be sufficient to make these infirm men comfortable if Chelsea is shut up, supposing the funds were sufficient only for 5,000 out of the 15,000 men, all the infirm men in the other two-thirds would have no means of supporting themselves?—They would be no worse off than they are at present, but we can scarcely believe that there would be any number of them. If the funds accruing from the estate were dealt with in some such way as we have suggested, we believe that not less than 10,000 out of the 15,000 would benefit.

214. The men I am referring to would certainly be worse off than they are to-day, because now they have Chelsea to go to, whereas, under your proposal,

probably two-thirds of them would get nothing beyond their ordinary pension?—At present not more than one out of every 30 can receive any benefit.

215. Perhaps so, but that one is the very man for whom Chelsea is intended; it may be necessary to extend the benefit to a larger number than at present, but as I understand it Chelsea is for those very men?—We think that most of the men you refer to do not occupy these Hospitals; those men are married and have wives and children to provide for, and therefore they cannot get into Chelsea.

216. At all events under the proposal you make there would be a considerable proportion of the men who now benefit by Chelsea who would not do so then?—At the most only 678 men can benefit now, whereas in the scheme propounded by us some thousands, at least, must benefit.

217. You have stated that some of the in-pensioners would prefer to be outside with an extra 6*d.* a-day, are you authorized to speak for the in-pensioners?—When we visited Dublin quite 80 of the inmates gathered round us (which we were rather sorry for, because we did not want our business known), and said if they could get 1*s.* a-day in addition to their life pension they would leave the hospital next day. At Chelsea a large number of the men have told us the same; in fact, the men at Chelsea have sent scores of letters urging us to leave no stone unturned in our endeavour to get the establishment closed.

218. *Mr. Fitzgerald.* Are those letters in existence?—Yes, I have some of them at Portsmouth.

219. What number have you received from Chelsea?—I could not say exactly.

220. *Mr. Ellis.* We understand that you appear here in a thoroughly representative capacity to speak for the pensioners?—I do.

221. Have you any report or balance sheet of your Association?—Yes, here is the report for the year 1892 [handing in the same].

222. I see by this report that there were only 232 members, is that so?—Yes, up to December, 1892, but that is for Portsmouth only.

223. But we may take it for granted that you have, as you have stated, 5,000 members now?—Yes.

224. We presume there will be no suggestions made hereafter that this is not a representative association?—I am quite positive of that.

225. And are we to understand that all your views are contained in the statement laid before us?—That is the base of our argument. That was drawn up and approved by the Association at Portsmouth where the head-quarters of the Association are. We established a branch at Devonport last January, and that branch now numbers more than 1,520 members. That paper was very fully considered, because before putting it in its final form, we sent round to each branch for suggestions.

226. Then are we to take it that your contention is, firstly, that the Hospital lands belong to the Army and are held in trust by the Commissioners for the benefit of pensioners; and, secondly, that there is a large capital value lying there which might be turned to a much greater account?—Yes.

227. The first point resting on the evidence of Sir Patrick Grant and General Hutt?—Yes, and on the report of 1870.

228. But the report of the Committee of 1882 is against that?—We can see where it gives room for a difference of opinion, but we are unable to see how the funds so transferred can be for the benefit of Government.

229. Have you had an opportunity of going into the historical data on the subject?—We have not.

230. If upon an investigation of the historical data it turned out that there was no ground for the contentions of Sir Patrick Grant and General Hutt, those contentions would disappear, would they not?—They would disappear, but I must say that the pensioners throughout the country would be more than astonished if they found that such men had given that evidence without authority.

231. It was hardly a question of authority, it was rather a matter of knowledge, and they were asked the questions to see what they knew of the facts?—We have based our contentions upon their evidence because we thought they had the best authority for speaking.

232. Have you committed yourselves in any way to a higher estimated figure of value for the property than that put forward here this morning?—Very nearly double.

233. What was the sum?—4,000,000*l.* and something.

234. May I take it from you that the 4,000,000*l.* has now, under the light of accurate investigation, shrunk to 2,300,000*l.*?—Yes; the first was an estimate without authority, made up in somewhat the same way as we have made up the figures for Dublin where we have been working on theory. At first we had only the figures propounded to us by men of but very little experience.

235. May I submit to you that the estimate is likely to still further shrink when a less inaccurate calculation is made?—The Association will be quite willing to accept anything that is fair and right.

236. The estimate of 2,300,000*l.* rests upon the proposition of cutting the land up into building plots?—Yes.

237. You are aware, of course, that by permission of the Trustees and others the public have a certain amount of enjoyment out of that property now?—We have been given to understand that the right of way has always been held by the Hospital authorities, and never handed over to the public, and consequently it can be closed any day.

238. But the public have a certain amount of enjoyment there?—We know that they have a way there, but they have no claim to it.

239. I am not putting it so high as that. Does your Association think that the House of Commons, or the London County Council would be likely to view with favour a proposition for cutting that area of ground into building plots?—We think the House of Commons would.

240. At all events, I may take it from you that your case rests largely on the sum being realized which the gentlemen you have employed estimate?—That is so.

241. And if there is any great shrinkage, for any reason whatever, in this 2,300,000*l.* your case would be largely affected thereby?—Yes, of course.

242. *The Chairman.* You probably would agree that having employed a valuer who lives at Portsmouth it would be desirable, before any definite conclusion is come to on the point of value, that somebody who has a full knowledge of London values should be consulted?—We have not the slightest idea in our own minds at present, nor have we had from the beginning, but what the War Office would employ some official, or some private person for that purpose; in fact, we think there ought to be a valuer in opposition to ours.

243. Then you think that the opinion of a thoroughly competent and independent valuer would be of great use even after your own valuation?—Most undoubtedly; but I think the two valuers ought not to be thrown into contact, and made acquainted with each others' work.

244. *Mr. Fitzgerald.* You say that this paper forms the base of your claim on behalf of the pensioners?—Yes.

245. And that it is framed principally upon the evidence given by Sir Patrick Grant and General Hutt?—Yes.

246. And your attention has been drawn to paragraph 46 of the Report of 1882, in which the Committee appear to differ from that evidence?—It was pointed out that the Committee did differ, but we are unable to see where the difference comes in; that is to say, we are unable to see if the money was transferred from one source to the other why the money does not still belong to the pensioners; we think they

have still the same claim. It was still a deduction from the men's pay.

247. The evidence of Sir Patrick Grant and General Hutt is, roughly speaking, this, that Chelsea Hospital is the property of men of the Army and of nobody else?—Yes.

248. And the Committee appear to differ from that?—Yes.

249. And further they go on to say this, "But even if General Hutt's claim could be maintained on these grounds, they have long since been extinguished by the annual grants made to Chelsea and Kilmainham Hospitals, and to Army pensioners generally, which far exceed the amount derived from stoppages or any other sources." Have you considered that point at all?—We have considered that the annual grants have only been given in return for money abstracted from the funds.

250. On that point you also disagree with the finding of the Committee, your conclusions being based on the same evidence as before?—Yes.

251. At Question 115 of the evidence taken before the Committee of 1870, we find this, "Was not there a poundage upon the pay of the Officers as well as upon the pay of the men?—(A.) Yes, and in addition there was a very heavy deduction made from all appointments; the Governor of Gibraltar and the Governor of Hurst Castle and other places paid a very heavy duty." Does your Association admit that the Officers of the Army have an equal share with the men of the Army in this property which you maintain belongs to the Army?—We think those Officers had a life interest, but as during the present century the whole of the estate has been dealt with for pensioners only and not for Officers, we have certainly thought that no Officer can put in any claim.

252. Do you agree to the answer of General Hutt to the question as put to him upon the subject of poundage?—Yes, we know there was poundage upon the pay of Officers, we admit it.

253. In paragraph 18 of the paper you have handed in, you express dissatisfaction and want of confidence in the Board of Commissioners at Chelsea Hospital; are we to take it that the reasons for that want of confidence are all expressed in paragraph 13, and that you have not got any more?—We think that paragraph fairly represents our views with regard to want of confidence.

254. And your reasons also?—Yes.

255. *The Chairman.* One of your reasons is that they took no notice of the paragraph in "Modern Society"?—I do not think the War Office will contradict that; taking the steps we did we believed it to be reliable.

256. *Sir A. Haliburton.* You did receive a letter from the War Office, dealing with the whole question, which you do not appear to have included in your prints. The letter is as follows?—

"War Office,

"Sir, "18th November, 1892.

"I am directed by the Secretary of State for War to acknowledge, with his thanks, the receipt of your letter of 24th ultimo, enclosing a report of a public meeting, held in connection with the 'Royal Chelsea Hospital Army Age Pensioners' Association,' for the purpose of promoting a scheme for abolishing the Royal Hospitals at Chelsea and Kilmainham, and appropriating the proceeds of the sale of the sites of those Hospitals for the purpose of augmenting out-pensions. In reply, I am to acquaint you that the question has been examined more than once by specially appointed Committees, the latest in 1882, and it has been found that the general sentiment of the Army, as well as of the public, was in favour of retaining these asylums for infirm and helpless old pensioners.

"I am, &c."

We sent the report of the meeting some months before that; but with regard to the outcome of the sentiment of the Army, we have given a paragraph to that in our paper.

257. *Mr. Causton.* Have you had any correspondence direct with Chelsea?—Nothing beyond what I have already referred to. With reference to what has just been said about the sentiment in the Army, I should like to call attention to paragraph 7 of our paper. In that we refer to the letter of November, 1892, and it was that letter, and the answer given to Colonel Hughes in the House of Commons in February, 1893, that made us take action in the way we did.

258. *The Chairman.* Have you at present any occupation?—Yes, I am employed as a Wesleyan Scripture reader at Portsmouth. I left the Service seven years ago for the purpose of taking up that employment, and I have continued in it ever since.

(*The witness withdrew.*)

Mr. P. VAUGHAN, *examined.*

259. *The Chairman.* Are you a pensioner?—Yes.

260. What rate of pension are you getting?—2*s.* a-day.

261. What regiment did you belong to?—The 104th Foot. I was a serjeant when I left.

262. One of the objects of this enquiry is to see whether the revenues of Chelsea Hospital could be used in a more advantageous manner; have you anything to say upon that point?—I fully endorse the memorandum, which I believe the President of our Association has already put before you. I may also say, as Secretary of the Association, that I have been in communication with hundreds of pensioners, and their views are with us. There are some thousands of paying members upon our rolls, but besides them there are a great many whose sympathies are with us, although they are really not in a position to subscribe towards the Association.

263. Do you support Mr. Punter's view that Chelsea should be given up, and the funds accruing therefrom so divided as to give 6*d.* a-day more pension to the out pensioners, as far as it will go?—Yes.

264. You are of course aware that the number of men to whom it could be given would depend upon the amount of the funds which might be acquired by the sale of Chelsea?—Yes.

265. And if the number were much smaller than is stated in this memorandum as likely to be the case, should you still think it desirable that Chelsea should be shut up in order that fewer should receive the 6*d.* a-day?—There are only 678 men who now receive the benefits, whereas, under the other arrangement, thousands would share them.

266. A suggestion is made that the extra 6*d.* might be given to 15,000 men; but suppose it were possible to give it to only 5,000 or 4,000, or (say) only to 2,000, would you still consider it wise to dispose of Chelsea?—Yes, because there would be more who would be benefited then than there are now.

267. *Mr. Fitzgerald.* What is the smallest number below which you think it would be better to leave the Hospital as it is?—That is a question we have never gone into; it all depends upon the amount of money realized by the estates. We know that there are a number of aged men who can do nothing to

augment their pensions; some of them have only 6*d.* or 8*d.* a-day, and we think it would be better to give them 6*d.* a-day more than let things go on as they are.

268. *Mr. Ellis.* You say it all depends upon the capital sum realized. Suppose that turned out to be very much less than was expected, and the sum to be given to a certain number of men came out at less than 6*d.*, what is the lowest amount per man that you think it would be worth while to give?—I am not prepared to answer that.

269. *The Chairman.* Do you propose that the 6*d.* should be given to the older men whatever their pension, whether high or low?—Yes; with a view to shutting out favouritism we would do that. We know that the naval pensioners say that their pensions are not now given fairly; there is a sort of rule of thumb arrangement, and we wish to avoid that.

270. Do you think that the very infirm men in Chelsea now, who would be receiving only a very small sum as outside pension, would be able to support themselves on their pensions and an extra 6*d.* a-day?—The naval pensioners are treated in the naval hospitals, and we would treat our men on the same principle.

271. That is not proposed in your scheme, is it?—You propose something with regard to the present men in Chelsea, but I do not know that your proposals refer to those infirm men who in the future would have a claim on Chelsea if it existed?—We had no professional assistance in drawing up our paper, and that is a point which may have slipped, but that is our intention.

272. As I understood your Chairman, he said that was not your intention. He said it referred only to men in Chelsea now, and that the paragraph was not meant to be enlarged to refer to men who, in the future, would have a claim upon Chelsea. Your view appears to differ from that of your President?—My idea is that this should be continued to our men in the same way as it is continued to naval pensioners who get that benefit, although Greenwich Hospital has been abolished for years.

273. The latter part of section (*d*) of paragraph 12 is, "all in-pensioners remaining should be transferred to military hospitals on similar terms to those upon which the naval pensioners are admited to naval hospitals?—I take it that refers only to the present time, as to the closing of the hospitals.

274. And you wish to carry it rather further?—Yes.

275. No financial provision is made for that in this scheme?—No.

276. *Major-General Duncan.* How would you pay for those men?—How are the naval pensioners treated now? We should like to treat our men in the same way; perhaps that is only a matter of detail which will have to be settled afterwards.

277 *Mr Ellis.* Here is the report of your Association for 1893, and it shows only 312 members?—Yes.

278. How do you explain the difference between that and the number of members you are now stated as having?—We have increased since then, Mr. Chew alone has raised something like 1,600 members during the present year. That report, I think, accounts only for the money we have received.

279. Had you then a great many unpaying members?—No, but several of our branches could not pay up just then.

280. You had not received the money representing the members?—That is so.

281. Would you say the discrepancy is very large?—Yes; when the Association was first formed we prepared a lot of papers and sent them round to the various newspapers in the country, but they did not respond, and eventually Mr. Chew took up the thing, and since then we have increased by leaps and bounds.

282. A certain statement has been made to certain people, who upon that statement have paid 1*s.* to become members of this Association, and those people now amount to several thousands, is that it?—Yes, that is it, and, besides, we have thousands of sympathisers who cannot afford to pay. We should be quite satisfied it every pensioner paid 1*s.*

283. *Sir A. Haliburton.* Do I understand that the 6*d.* a-day which you propose to give to the old age pensioners you would give to all old men equally, irrespective of the pension they are receiving?—Yes.

284. If a man had 4*s.* a-day, you would still give him the 6*d.*?—We do not propose to do that; our President gets 4*s.* a-day, and he would be insulted if we offered him the 6*d.*

285. Would you give it to men getting 6*d.* a-day?—Yes.

286. And only 6*d.* to men getting no more than 9*d.*?—Yes.

287. *The Chairman.* Then would not the result in the future be that many of the old and infirm pensioners would go to the workhouse instead of going into Chelsea as now?—That is a matter which will have to be settled in future.

(*The witness concluded his examination.*)

Mr. Chew, *examined.*

288. Are you a pensioner?—Yes, with 3*s.* 2*d.* a-day and a 10*l.* annuity. I was a serjeant-major in the Royal Artillery,

289. Have you seen the memorandum which Mr. Punter has read to us?—Yes, I was present when it was drawn up.

290. Are you in favour of the proposals made in it?—Yes, certainly. There is one point however to which I should like to refer, and that is the one having reference to the admissions into the military hospitals. I think when we drew that up it was only intended to apply to the men in Chelsea now, and I do not think any discussion took place as to the future.

291. It clearly does apply only to the present cases?—Yes.

292. The point suggested to our minds is, if Chelsea were shut up there would probably be a large number of those men unprovided for, and the thing is how to provide for them. I understand Mr. Vaughan would be in favour of dealing with them in a way something like that in which naval pensioners are dealt with, only he has no financial scheme to put forward to enable him to do it?—That is so.

293. *Major-General Duncan.* On what do you ground the claim of the pensioners in general to the property at Chelsea?—Principally on the Royal Warrant issued by Charles II., where stoppages were ordered to be made from the soldiers' pay for the purpose of creating a fund for the erection of this Hospital.

294. But was there not also a stoppage made from the Officers?—Yes, I believe there was, but I do not think it particularizes the Officers in the Warrant.

295. *Sir A. Haliburton.* You never paid any of those stoppages?—No.

296. Nor did any of the present generation of soldiers?—No; but we think the property belongs to the Army; then there are certain legacies which have been left for the old pensioners.

297. *Mr. Fitzgerald.* Have you any record showing when the last stoppage took place?—I cannot say whether there is any record of that sort, at any rate I cannot produce one. With regard to the paragraph dealing with the 6*d.* or 4*d.*, I am in favour of that. If there is not sufficient to give 6*d.*, then I

would, sooner than leave a lot of men out in the cold, distribute to the whole of them over a certain age.

298. *Mr. Ellis.* Even if it came to 1½*d.* or 1*d.* a-day?—Yes, but I do not think it would go so low as that. We anticipate the property will bring in a good amount. I have received over 2,000 letters on the subject of the amount to be given.

299. *The Chairman.* Are not the greater number of those written under the same impression as lead to this paragraph, namely, that the sum to be given would be equivalent to 6*d.* a-day for something like 15,000 men?—Some of those letters are very pitiful to read, a large number of them come from men in the workhouses, and any small addition to their pensions would be very welcome.

300. Would not the class of men now in Chelsea be the class who would go into the workhouses in future, that is, the men who are so infirm as to be unable to work for themselves?—Yes, but many of those in the workhouses now have wives and families to support, while most of those in Chelsea are single men. Many who have wives cannot keep them, and so they creep into Chelsea and take all the benefit for themselves.

301. *Mr. Ellis.* Your scheme rests entirely upon the sum of money to be realized?—Yes.

302. And if the amount turns out to be very much less than is expected, the scheme to that extent will diminish in value?—Quite so.

303. Are you aware that a sum of 4,000,000*l.* has been put forward in some quarters?—Yes.

304. And are you aware that that amount has shrunk to 2,300,000*l.*?—Yes.

305. Would it be possible for it to shrink still further?—Yes, it is possible.

306. And to that extent the case would be affected?—Yes. That amount of 4,000,000*l.* was put down in the early days, when we had not gone properly into the matter, and when it was proposed to sell the property, but the scheme now is that it should be leased so as to bring in an annual sum, to be devoted to the purposes we suggest, that is the difference between the two.

307. *Mr. Fitzgerald.* With reference to what has been said about the number of men in the workhouses, has your Association any data showing the number of married soldiers who are now in the workhouses in this country?—I am afraid we cannot get that information, but I have a number of letters dated from workhouses.

308. From married pensioners?—They did not say married.

309. Have you any means of calculating how many married pensioners there are now in the workhouses?—I am afraid we cannot do that without sending a circular round. We have been very heavily handicapped in our efforts, none of the London papers would take up our case and so we have had no means of getting at the whole body of pensioners.

(*Messrs. Vaughan and Chew withdrew.*)

Mr. J. Beer, *examined.*

310. *The Chairman.* To what regiment did you belong?—To the 1st Bn. Royal Welsh Fusiliers.

311. Are you a pensioner?—Yes; when I left the Service I was a staff-serjeant of pensioners.

312. What is the rate of your pension?—2*s.* 11*d.* a-day and 15*l.* annuity.

313. Are you a member of the Pensioners' Association?—No, I have never heard of it.

314. This Committee is sitting for the purpose of seeing whether the present revenues and funds of Chelsea Hospital can be used in a way more advantageous to the pensioners than at present; are you prepared to give the Committee any opinions upon that point?—In the first place, I think that those men who have only small pensions ought to be placed on the full amount of pension on reaching 60 years of age, and further, I think the Hospital should be kept up.

315. Are we to take it that you believe that the benefits which the Hospital give to the infirm are appreciated, and that there are at all events a considerable number of men to whom it is a distinct advantage?—Most decidedly; many men came to me, when I was staff-serjeant of pensioners, and enquired how they could get into the Hospital, and I have helped to get a good many of them in.

316. Then your view is founded upon your own experience and upon what you have heard?—Yes, I am lodging now with a pensioner and have got his opinions upon the subject, and I was in Chelsea Hospital only last Sunday afternoon.

317. Do you think there is much demand for admission into Chelsea Hospital?—A great many more want to go in than they can find accommodation for.

318. If there were more funds available do you think they would be better spent in increasing the accommodation inside the Hospital rather than in giving an increased amount to pensioners outside?—I have the case of the temporary men at heart, because I have seen so many of them come home without much claim on the Service, and, of course, they have had to turn into the workhouse.

319. Do you think that some provision should be made for them?—Yes, more especially after they reach 60 years of age, when they get past their work; some of them are prematurely old in consequence of the Service, and yet they have pensions of only perhaps 6*d.* or 8*d.* a-day.

320. Which would you recommend in order to alter as far as possible this state of things, would you increase the accommodation of the Hospital or would you give more money outside?—Do both.

321. *Sir A. Haliburton.* Do you think the Hospital should be retained for the infirm old men?—Yes, and for the wounded in time of war. Where men have only 10*d.* a-day they become an encumbrance to their friends and neighbours, and that does not aid recruiting.

322. Then you think that Chelsea and Kilmainham should be kept up as they are, and an extra allowance made to the pension of old men independent of Chelsea?—Yes.

323. What is your idea of the amount the pension should be made up to?—1*s.* a-day at least.

324. *The Chairman.* A suggestion has been made that if the necessary funds can be found it would be a fair thing to give 6*d.* a-day extra pension to all pensioners, irrespective of their present rates, beginning with the oldest men first, and going as far as the funds would allow, do you think that would be a fair way of distributing any surplus funds there may happen to be?—For the present.

325. For the future?—As Royal Warrants are made they increase pensions, and with my rank, if I were discharged now, I should get 6*d.* or 8*d.* a-day more than I really do get.

326. But do you think it fair that men receiving a good rate of pension should share equally with those who are getting a small pension?—I should not like to venture an opinion upon that, it would be selfish of me.

327. *Sir A. Haliburton.* You would not advise the selling of Chelsea in order to provide for a slight increase in the out-pensions, would you?—Certainly not; I believe Chelsea was founded for infirm old pensioners. There are a good many discontented pensioners now, and the quarterly system of payment is not a good one, the alteration from the monthly system was a great disadvantage. Of course as a staff-serjeant of pensioners it was much more

trouble to pay monthly than quarterly, yet I believe the pensioner is worse off.

328. *Mr. Ellis.* Do you believe you represent the views of many old soldiers?—Yes, very many. Since I got the letter to come here I have spoken with many pensioners, and they all agree with me. I should be an applicant for Chelsea myself if my daughter had not come to nurse me.

329. *Sir A. Haliburton.* I suppose you saw something in the papers which led you to write to the Secretary of State for War about coming here?—Yes.

330. Where did you first see any notice of this enquiry?—I cannot say quite, but I saw it somewhere. I went to see an old comrade of mine in Chelsea the other day; he is entitled to 1*s.* 9*d.* a-day pension, but he has no friends, and if he was turned out of the Hospital he would have to go into a workhouse, unless you gave him 2*s.* 6*d.* or 3*s.* a-day. The men are paid quarterly now, but in many cases all their money is gone in a week.

331. *The Chairman.* Do you think if Chelsea were done away with that a considerable number of men who now find an asylum there would have to go to the workhouse?—There is no other place for them. With my rate of pension there would be no other place for me if it were not for my daughter being at home. I am troubled with epileptic fits. I may get one going to bed at night, and one when I get up in the morning, and the man I went to lodge with when I was alone made it a condition that he should have every farthing of my pension in return for my board, lodging, and attendance.

332. *Mr. Fitzgerald.* If it had not been for your daughter coming home, would you have applied to go into Chelsea?—Yes, I had got a paper for that purpose.

333. And I presume your case is not an uncommon one, there are others in the same condition as you are in?—There is no doubt about it. I have studied these pensioners for 28 years, and it is all very well for them to say they want a little more cash, we all want that, but the great thing is, do we spend it as we ought. Whatever you do, I hope you will not do away with Chelsea or Kilmainham.

(*The witness withdrew.*)

MONDAY, 9TH JULY, 1894.

Present

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

JAMES HAYES (late private, 10th Hussars), *examined.*

334. *The Chairman.* For how long have you been an in-pensioner of Chelsea Hospital?—Going on for four years.

335. What was your rate of pension?—1*s.* 1*d.* a-day after 23 years and 9 months' service.

336. Are you married or single?—Single.

337. How long was it after your first application that you had to wait to be taken into Chelsea Hospital?—Five months.

338. What is your age now?—About 64.

339. Are you comfortable in Chelsea?—I am comfortable enough, but there are a lot of disagreeable people there; I mean the private soldiers, the other pensioners.

340. Do you mean that you do not get along well with them?—They watch you to see what you say, and where you go, and then they report you to the non-commissioned officers, and you get confined in the guard room and brought up before the Officers if you are caught napping.

341. Do you wish to leave the Hospital?—Yes, if I had sufficient to help me get along with my friends.

342. What do you call "sufficient"?—They say I cost 3*s.* 6*d.* a-day in the Hospital; if they gave me that outside I would be no trouble to them.

343. I think you must dismiss that 3*s.* 6*d.* a-day as being not quite accurate; but apart from what you cost in the Hospital for how much do you think you could live comfortably on outside?—I could be comfortable on about 3*s.* a-day.

344. If you did not get 3*s.* a-day you would rather stay in the Hospital?—No, I do not think I would; I would sooner live with my friends.

345. There is nothing to prevent you going out now if you wish to?—No, but I could not live on my pension outside.

346. What sum do you think would be sufficient to induce you to leave the Hospital?—I would rather leave that to the gentlemen of the Committee.

347. *Sir A. Haliburton.* What is the least sum that would induce you to go out, if a sum were offered you?—If I got 2*s.* besides I would go.

348. *The Chairman.* That would be 3*s.* 1*d.* altogether?—Yes.

349. And you would stay in the Hospital unless you could get 3*s.* 1*d.* outside?—Yes, or 3*s.*

350. Is there anything further you wish to say?—No; I have no fault to find with the Hospital, it is only with the people there, like myself.

(*The witness withdrew.*)

JOHN DIXON (late private, 100th Regiment), *examined.*

351. *The Chairman.* What rate of pension did you get on leaving the Army?—11*d.* a-day.

352. What is your age?—71.

353. How long have you been in Chelsea Hospital —Since 1881.

354. Are you married or single?—Married.

355. Have you any family?—Yes; they helped to support my wife, but now my boys have gone into the Army. I got 1*s.* a-day for working in the hospital, and I was able to pay for a room for my wife out of that; she lives down the other side of Plymouth. I have worked very hard since I came to Chelsea, but now I have had to give it up.

356. Then you were able to provide for the maintenance of your wife?—I was, but I am not able to do so now.

357. Is she provided for now?—No, she is not; and my boys have gone away, and some are dead. I am still working in Chelsea, but I get only 4*d.* a-day instead of 1*s.*, which I got as cook for nearly 10 years. I give my wife 2*s.* 6*d.* to pay for her room. I work very hard for my 4*d.* a-day. I am what they call "dishman" in my ward, but I do not take a penny out for beer.

358. How is your wife supported?—By the jobs she can get to do.

359. Have you anything to say with regard to the Hospital? Do you wish to remain in it, or to leave it?—According to what I have seen in the papers, I would like to get something and go and live with my wife at home.

360. If you left Chelsea, how much do you consider you ought to have in order to keep yourself?—I suppose it would be the same as Greenwich.

361. You would not like to leave Chelsea and receive only the same pension as you had?—No, because I should have no home then; 11*d.* a-day would not enable me to support myself and my wife.

362. What sum would enable you to do that?—2*s.* a-day.

363. If you got 2*s.* a-day, would you prefer to leave the Hospital?—I would, very much.

364. *Major-General Duncan.* 2*s.* a-day instead of 11*d.*?—Yes; we are very old now, but we could manage on that.

(*The witness withdrew.*)

WILLIAM BROWN (late private, 72nd Regiment), *examined.*

365. *The Chairman.* What is your present age?—57.

366. What is your rate of pension?—10*d.* a-day. I lost a leg before Sebastopol.

367. Are you married or single?—Married.

368. Is your wife provided for?—No, she is not.

369. Do you do any work in the Hospital?—No, I have not had an opportunity of doing anything. Her Majesty is very kind to my wife and sends her 2*l.* a-year in consideration of the number of sons I have in the Army. I had eight sons in the Army, but I have only seven in it now.

370. When you were taken into the Hospital, were you asked whether your wife was provided for?—Yes.

371. Was she provided for then?—No.

372. But you were taken in notwithstanding?—Yes, on an understanding.

373. What was that?—A document had to be filled up by the parochial officer, one of the chief of the parish, to certify that she would not become chargeable to the parish, and when that was filled up I was medically examined and found fit for anything.

374. How long have you been in Chelsea Hospital?—Five years next October.

375. Are you comfortable in the Hospital?—I have nothing much to complain of, but of course having my wife outside it makes my life what I may call a little bit miserable.

376. Would you prefer to leave Chelsea?—If I got anything reasonable I would be very glad to go out and live with my wife.

377. What sum per day would enable you to leave the Hospital?—I think I could live very well on 2*s.* 6*d.* a-day, if I could get it.

378. You would not like to leave the Hospital unless you received as much as 2*s.* 6*d.* a-day?—Quite so.

(*The witness withdrew.*)

EDWARD PAYTON (late private, Royal Engineers), *examined.*

379. What is your age?—70 this year.

380. Are you married or single?—Single.

381. How long have you been in Chelsea?—Three years on the last day of June. I went in on account of paralysis of the hand, but I would rather have remained out than gone in.

382. How long service had you in the Army?—24 years and 3 months.

383. What rate of pension did you receive?—1*s.* 2½*d.* a-day.

384. Are you comfortable in Chelsea?—I cannot say I am, I would rather have a little trifle more and spend the remainder of my days outside.

385. How much per day would enable you to leave the Hospital and live outside?—I would be thankful for 1*s.* more than I brought in, that would make 2*s.* 2½*d.* altogether.

386. If you got that you would prefer to leave the Hospital?—Yes.

387. *Sir A. Haliburton.* Why did you go into Chelsea?—On account of this affliction.

388. And you would rather stay there if you did not get the 2*s.* 2½*d.*?—No, I would rather leave if it was only 6*d.* I do not want to crave anything, I want freedom.

389. *The Chairman.* If you got 1*s.* 8*d.* a-day would you go out?—I would rather take that than stay in; I would rather scrape along on a crust of bread and have my freedom.

(*The witness withdrew.*)

JOHN THOM (late private, 70th Foot), *examined.*

390. *The Chairman.* How long service had you in the Army?—Nearly 22 years.

391. What is your age?—75.

392. Are you married or single?—I am a widower, if my wife were living I should not be in the Hospital. If I could see my way my friends would take me, and I should be comfortable and happy outside; I should like to go and die with my people.

393. What rate of pension were you receiving when you went in?—1*s.* 1*d.* a-day.

394. What sum would enable you to go and live with your people outside?—I think 2*s.* 6*d.* a-day would do it.

395. If you did not get as much as 2*s.* 6*d.* a-day you would stay in the Hospital, would you?—Oh dear no; the greatest grief we have there is our food.

396. *Major-General Duncan.* What is the least sum you would take to go out of the Hospital?—I would take less, but I could see my way better with that.

397. *The Chairman.* Would you go out if you only got 1*s.* a-day besides your pension, that is if you got 2*s.* 1*d.* a-day altogether?—Yes, I think I would. The inmates feel the draughts in the hospital, they give us such colds.

(*The witness withdrew.*)

JOHN BURTON (late St. Helena Regiment), *examined.*

398. *The Chairman.* How long were you in the Service?—Eight years, the regiment was disbanded in 1864.

399. Are you married or single?—Single.

400. What rate of pension did you receive?—1*s.* a-day.

401. How did you come to get 1*s.* a-day for only eight years' service?—I was hospital serjeant for three or four years of that time; the climate caused necrosis of the leg and right arm, and so I was invalided.

402. Are you comfortable in Chelsea?—Tolerably so. I was deputed by about 20 men of my ward to speak for them to-day.

403. How many are there in the ward altogether?—23 is the full strength, but there are not more than 20 or 21 in it now.

404. They have authorized you to speak for them?—Yes. They have gone into the figures put forward if the place is broken up, and the men declare, and so do I, that it would be starvation pay at 2*s.* a-day, and therefore we do not agree with those people from Portsmouth and Devonport. 2*s.* 6*d.* a-day would just help such men as myself to live, that is, men who cannot do anything to add to their pension. We have gone into the statements, and that is what we all think, that is, myself and the 20 I represent.

405. You would not like to leave the hospital unless you got 2*s.* 6*d.* a-day?—We should not better ourselves on 2*s.* 6*d.*, and 2*s.* would be starvation. There are a good many things to be considered, rents are high; we must not take the Kilmainham men as an example. If they are satisfied with 2*s.* it is because rents are cheaper in Ireland, and, therefore, it is about an equivalent to 2*s.* 6*d.* here. Supposing we pay 6*d.* a-night for lodging, or say 4*s.* a-week (and that is a lot for a poor man), then we must add 1*s.* for fuel and light and washing. That runs away with 5*s.* out of the money, whatever it may be. Then a man has to live, and he has to clothe himself and keep himself in boots respectably, which I am sure they will all do if they can get released from what I may call a sort of bondage.

406. Then may we understand that you, and those you represent, would prefer the present arrangement going on unless you can get 2*s.* 6*d.* a-day outside?—That is right.

407. *Major-General Duncan.* You would prefer the 2*s.* 6*d.* a-day?—Yes, to the Hospital, and so would every one I represent.

408. *The Chairman.* I suppose there are a good number in the Hospital who are more infirm than you are, and who, if they went out, would find it very difficult to get somebody to look after them for that amount?—Yes; but for those who are very infirm I should hope that provision would be made for them to remain for a short time. If you take into consideration the average age you will find that it will come out at not very much less than 64 or 65, and in the general order of things those men would have the 2*s.* 6*d.* a-day for only about a few years. I would beg of you, in the name of all the pensioners, that you will deal liberally with us if you decide to break up the Hospital.

409. You would not be in favour of a scheme which would make no provision for taking care of the infirm pensioners who are now looked after in Chelsea? You do not think such a scheme would be a fair one, do you?—There might be a few who could not be removed at the time, and if I might be allowed to make a suggestion, I should say keep the infirmary part of the Hospital for them.

410. *Major-General Duncan.* What about the old men who came here after?—Deal with them as the Greenwich people do, or the same as is suggested by those people from Portsmouth, send them to a military hospital.

411. *The Chairman.* But that would cost money, the same as Chelsea does, and we should have to make provision for that?—Yes, but I think there would be ample and sufficient funds if these places were utilized properly and the men are given a fair and reasonable amount to go out with. As far as my ability as an accountant goes I think there would be funds enough.

412. *Major-General Duncan.* You would give every man 2*s.* 6*d.* a-day?—Yes.

413. But how about the men who came hereafter?—Many of the amounts would soon fall in as the men would die off; the death rate now is about 70 a-year, and as there are only 538, in a few years you would have a good amount in hand.

(*The witness withdrew.*)

JOHN WHELAN (late private, 101st Regiment), *examined.*

414. *The Chairman.* How many years did you serve in the Army?—16½ years.

415. What was your rate of pension?—9½*d.* a-day.

416. Were you invalided?—Yes.

417. Are you married or single?—Single.

418. How long have you been in Chelsea?—15 years; from 1st April, 1879.

419. What is your age?—60 years and 3 months.

420. Are you comfortable in Chelsea?—Yes, but it is a very strange place if once they get down on you. When I went there first I was afflicted with lung disease, and I was coughing, and they were at me day and night, and I did not know what to do with myself; you cannot tell who is your enemy, they baffle you so much.

421. Are you now talking about the non-commissioned officers?—Yes. It is a good institution there is no doubt about that, but you cannot tell to-day if you will not be turned out to-morrow if they have a mind to do so.

422. Who?—Somebody from Chelsea.

423. *Sir A. Haliburton.* Who would turn you out?—The Commanding Officer.

424. Is anybody ever turned out?—Yes, a great number.

425. For bad conduct do you mean?—For anything at all; if you go up before him all that the Colonel has to say is, "I recommend you to be turned out," and out you go.

426. *The Chairman.* But not without some reason?—No.

427. Do you wish to go out of Chelsea?—Yes.

428. With the pension you had when you went in?—No, that would be of no use to me.

429. How much would tempt you to go out?—About 2*s.* a-day.

430. Would you leave the Hospital if you could get 2*s.* a-day assured to you?—Yes, I would.

(*The witness withdrew.*)

CHARLES STAKER (late corporal, 4th Regiment), *examined.*

431. *The Chairman.* How many years' service had you?—18 years; I was discharged medically unfit for further service on account of paralysis on my left side.

432. What was your rate of pension?—9*d.* a-day.

433. Are you married or single?—Single.

434. How long have you been in Chelsea Hospital?—Six years now.

435. What is your age?—I shall be 69 next birthday.

436. Are you comfortable in Chelsea?—Yes, as far as things go, but I would rather be with my friends for my last few years, if I could get enough to keep me.

437. What do you consider would be enough to keep you?—2*s.* a-day.

438. Would you leave the Hospital if you could get 2*s.* a-day assured to you?—Yes, and be glad to do it.

439. Would you leave it if you got less than that?—No, I could not do very well on anything less than that.

(*The witness withdrew.*)

HUGH WILSON (late private, 79th Regiment), *examined.*

440. *The Chairman.* How many years did you serve in the Army?—Close on 16; I got sunstroke in India, and was invalided home. They would not discharge me at once, they sent me to the depôt; but I could not be bothered, so I took my discharge.

441. What was your rate of pension?—10*d.* a-day.

442. What is your age?—69.

443. Are you married or single?—I am a widower.

444. How long have you been in Chelsea?—Hardly two years.

445. Had you to wait long after applying before you got in?—No; it was in November, I think, when I applied, and I got in on 1st January.

446. Are you comfortable in the Hospital?—No, I cannot say I am. My place is up at the top, and I have to go up 90 steps before I can sit down, and then if I want to smoke, I have to go down 180 steps to get one. From morning to night I go up and down at least 1,080 steps. If I had not been able to sit down for a minute or two before coming in here I should hardly have been able to speak, getting upstairs tries me so.

447. Have you any wish to leave the Hospital?—Yes, I certainly have. I would sooner be down the country side.

448. On what terms should you be willing to leave?—2*s.* a-day I think would do well enough.

449. Should you like to leave if you got less than 2*s.* a-day?—I could hardly manage that.

(*The witness withdrew.*)

ROBERT DAVISON (late private, 98th Regiment), *examined.*

450. *The Chairman.* How many years' service had you?—21 years and 57 days.

451. What was your rate of pension?—9*d.* a-day.

452. How old are you now?—Going on for 72.

453. Are you married or single?—Married.

454. Is your wife otherwise provided for?—No, nothing but what she does herself.

455. I suppose some provision is made for her, or else they would have objected to take you in?—It was with her sanction I came up; she is working for herself.

456. How long have you been in the Hospital?—Going on for six years.

457. Have you any wish to leave?—Yes, if I can get enough to live on.

458. More to live on than you had before?—Yes.

459. How much would enable you to live at home?—If I had 2*s.*, I could do on that with her.

(*The witness withdrew.*)

JOHN STANLEY (late private, 41st Regiment), *examined.*

460. *The Chairman.* How many years' service have you had?—22½ years.

461. What pension had you?—1*s.* a-day.

462. Are you married or single?—Married; my wife is in Australia.

463. What is your age?—72.

464. How long have you been in Chelsea Hospital?—About seven years.

465. Are you comfortable there?—I have nothing to say against it.

466. Have you any wish to leave it?—I would rather have pay outside, and go and join my wife.

467. What sum would enable you to live outside?—I think 1*s.* 6*d.* a-day in addition to what I have already got. I could get along very well on that.

468. That would be 2*s.* 6*d.* a-day?—Yes.

469. Would 2*s.* be enough?—Rent is very dear round here.

470. Then you would not care to leave unless you had 2*s.* 6*d.* a-day assured to you?—I think 2*s.* 6*d.* is reasonable and fair.

471. And if you did not get that you would prefer to remain in the Hospital?—No, I think I would rather go and join my wife in Australia.

472. But not with your present pension?—No, I could not very well do it with that.

473. Does your wife support herself?—Yes, she is with some of her relations, she does washing and laundry work.

(*The witness withdrew.*)

JOSEPH JOHN FARNHAM (late serjeant-instructor, 20th Hussars), *examined.*

474. *The Chairman.* How long did you serve?—8 years and 126 days.

475. Were you invalided?—Yes.

476. What was your rate of pension?—1*s.* a-day.

477. Are you married or single?—Single.

478. What is your age?—32.

479. How long have you been in the Hospital?—4 years.

480. Did you get taken in at once when you applied?—Yes, I wrote to the Duke of Cambridge, he considered my case and took me in.

481. Are you disabled now?—Yes, I suffer from anchylosis of the jaw, chronic rheumatism and heart disease.

482. Are you comfortable in the Hospital?—Very comfortable.

483. Would you prefer to leave the Hospital?—Not on the rate of money proposed by the Association outside; I cannot do with ordinary food, and, therefore, I should like a board of medical officers to sit on my case and see what would be required to support me outside.

484. Would you require somebody to look after your food?—I could manage that myself.

485. Have you formed any opinion as to what would enable you to live outside?—I disapprove of the scheme of the Association. They propose to give 2*s.* a-day to the inmates, but we have many men in there now who are entitled to 2*s.* a-day, and if they could not do with that before they went in, they cannot do with it now. The Association make no provision for the young men who leave Netley like myself. I was lucky on account of my rank to get a life pension on leaving the Army, or I should have been in the workhouse now. Then there are the nurses, they make no provision for them. Why not consider a scheme to enlarge the Hospital. Burton Court is absolutely no use to us, it is kept for the Officers' cricket ground, but why not sell that, it would realize quite 100,000*l.*, and if you did that you could acquire a place in the country for invalids like myself. Then there could be a reduction of quite 700*l.* in the Secretary's office, for there are plenty of good staff-serjeants and Army Quartermasters who could do the work of Mr. Dowling and the other gentlemen there.

486. Your suggestions would rather be in the direction of increasing the benefits of the Hospital to enable them to take in a larger number of pensioners than at present, instead of doing away with the Hospital?—Yes, and you could do that by selling Burton Court and reducing the Secretary's office by 700*l.* a-year.

487. Do you think in the interest of the pensioners generally it would be better to increase the accommodation rather than give more money to pensioners outside?—I have great sympathy with the outside pensioners, but the Association have valued our ground at more than it would fetch if disposed of.

488. Speaking generally, you think that any surplus revenues and funds that can be found from the Hospital would be better spent in making more accommodation inside, rather than in giving money to out-pensioners?—Yes.

489. *Sir A. Haliburton.* Then I gather you would not approve of having an old age pension?—No, I

think there should be an old age hospital. Men can be taken in now at 56 whether they are invalided or not, and some of them can do a lot of work. It seems to me there is too much red tape about it; my rank, for instance, ought to be done away with because it causes a lot of jealousy my being a serjeant and such a young man.

490. Does your rank give you any privileges?—Yes, I get 4*s.* 8*d.* a-week and have a room to myself.

491. Have you any duties to perform?—Yes, I have 28 men to look after; I see their rations drawn and served out to the men; I see that the men keep themselves clean; and I also do guards.

492. *Major-General Duncan.* The guard is quite a nominal thing, is it not?—Yes, it is more a gate duty.

493. *Sir A. Haliburton.* Are there many men like you?—Yes, 24 serjeants. I am in thorough sympathy with the out-pensioners, but I should like, if the Hospital is broken up, to have my case considered, because I am a great invalid; I do not want to be selfish, but as I cannot take the ordinary food, I think 3*s.* a-day is not too much for me.

494. *The Chairman.* If any such proposal were adopted there would be a necessity to make some provision for the infirm men, would there not?—Yes, but the outside Association proposes only to send us to the military hospitals, but the people at the War Office say there is not room enough in them as it is. They would not take us into the military hospitals.

495. Then some other means would have to be found for providing for the infirm men?—Yes, Netley is a good place.

(*The witness withdrew.*)

JOHN LAWSON (late serjeant, 11th Hussars), *examined.*

496. *The Chairman.* What position do you hold in the Hospital?—I am a colour-serjeant of pensioners.

497. How long did you serve in the Army?—7 years. I lost my arm in the charge at Balaclava.

498. What was your rate of pension?—1*s.* 8*d.* a-day.

499. Are you married or single?—Single.

500. What is your age?—67.

501. How long have you been in Chelsea Hospital?—6 years and 10 months.

502. Did you get admitted as soon as you applied?—I think I had to wait about 5 months.

503. Have you any remarks to make with regard to the suggestions that have been made as to doing away with the Hospital?—I have no complaints to make against the Hospital, and I should be very sorry to see it done away with.

504. You would not be so comfortable if you could not remain in the Hospital, would you?—I think not.

505. Unless you could get a larger pension?—That is so. I could do nothing with my pension outside; I tried that before I went into the Hospital. At present I have 7*s.* a-week and everything, and it would take a good pension to keep me and leave me that much clear at the end of the week.

506. How many men have you to look after?—There are 84 in my company.

507. Can you state what the general feeling of your men is upon this subject?—I think the general feeling would be in favour of the institution standing as it is, though there are some who are for breaking it up in any case. But if they did go, what would they do? Why, they would spend the whole of their quarter's pension in the first month, and then have to fall back on the workhouse.

508. In your experience have many men left the Hospital and come back again?—I know of two who were colour-serjeants, but they were glad enough to come back in 12 months' time.

509. *Sir A. Haliburton.* What was their rate of pension?—2*s.*, but they could do nothing with that. They have both got up to be serjeants now, but they will not be so well off as they were before. They were very anxious to come back, and one of them, Stradwicke, of the Engineers, said that he was perfectly miserable while he was away, he had no one to go to and no one to speak to. 2*s.* a-day does not go very far when you have to pay for everything out of it. The other man was Batchelor, of the 70th Foot.

510. Are they amongst the pensioners who are coming to-day to give evidence?—No, they are very well satisfied where they are, and they do not want to break the place up

511. *The Chairman.* Do you think that a scheme which proposed to take money acquired by disposing of the Hospital and giving 6*d.* a-day to as many of the older pensioners above 55 as it would admit of, would be a scheme which would satisfy the majority of the pensioners?—I do not know what they could do with an extra 6*d.* a-day, if a man had only a 1*s.* and you gave him 6*d.* more, what use would 1*s.* 6*d.* be to him outside.

512. Those in the Hospital now would clearly not wish to come out for an extra 6*d.* a-day?—No, not the generality of them, though some of them would do anything for a change, and then want to come back again.

513. *Sir A. Haliburton.* I suppose a number of men who have nothing to do get dissatisfied?—Yes, I think that is the chief cause of it.

514. *The Chairman.* Do not you think that some way must be found of providing for the most infirm men in the Hospital?—Yes, and there are a great many of those men; sometimes I have as many as 30 out of 84 in the infirmary.

515. Those men could not be turned out into the world unless some haven were found for them?—That is so.

(*The witness withdrew.*)

FREDERICK FOX (late serjeant, 16th Lancers), *examined.*

516. *The Chairman.* How long did you serve in the Army?—22 years and four months.

517. What was your pension?—1*s.* 6*d.* a-day.

518. Are you married or single?—Single.

519. What is your age?—66 last May.

520. How long have you been in Chelsea Hospital?—Four years on the 1st of this month.

521. What is your rank in the Hospital?—Colour serjeant.

522. How long had you to wait before you were promoted to that rank?—Seven months.

523. How long were you, after your first application, in getting into the Hospital?—About five months.

524. Are you comfortable in the Hospital?—Yes, very comfortable indeed.

525. You do not wish to see the Hospital done away with, do you?—I am very comfortable there in my old days.

526. What pay do you get in the Hospital?—1*s.* a-day for doing colour-serjeant's duties.

527. How many men have you under you?—100 men.

528. Can you state what the view of your men is in regard to this question of doing away with Chelsea?—The generality of them are in favour of the place being kept as it is, because if it were broken up they would have no other place to go to in their old age.

529. I suppose most of those who are satisfied and who wish the place to remain as it is have not come here to give evidence?—No, but about 20 or 30 of them came to me on Saturday morning and wished me to express to you that they were satisfied with things as they are.

530. *Sir A. Haliburton.* I suppose there are a good many who want to come out?—Yes, they are the discontented ones.

531. Have you many men under you who went out and then came back of their own accord?—Yes, a man named Wheeler, of the 4th Dragoon Guards, with only 4*d.* a-day went out. Then there was another man named Woods. He is the man you see going about here begging with medals on.

532. But these men have not come back again?—No.

533. What men have you who have come back?—I have some.

534. Do you know why they came back?—Yes, because they were starving.

535. *The Chairman.* I suppose the man who went out on 4*d.* a-day, had some other means left?—Generally those are cases of men who have gone away to someone who said they would take them, but after a while they get tired, and then the men want to come back.

536. Wheeler did not come back?—No, he has made three or four applications to do so, but the General will not admit him on account of his character being so bad.

537. You do not think the proposed scheme for doing away with the hospital and giving the money to a certain number of out-pensioners would, at all events, satisfy those who now reap the benefits of the hospital?—No, many of them if they went out would get rid of their pension in the first month, and then for the next two months they would be in the work house.

(*The witness withdrew.*)

William Leaper (late serjeant, 83rd Regiment), *examined*

538. *The Chairman.* What service had you in the Army?—19 years.

539. And what what was your rate of pension?—1*s.* 3*d.* a-day.

540. Are your married or single?—Single.

541. What is your age?—74.

542. Were you invalided?—Yes, from India, when I was in a very bad state of health.

543. How long have you been in Chelsea Hospital?—Six years last month.

544. Did you get in quickly, or were you kept waiting long after your first application?—I think about three months.

545. What is your rank in the Hospital?—Colour-serjeant, for which I get paid 1*s.* a-day. I have charge of 72 men.

546. Are you comfortable in the Hospital?—Yes, and I could not wish for anything better.

547. Have you heard of the suggestion that the Hospital may be done away with, and the money used for increasing the rates of out-pensions; in your opinion would that be desirable or popular amongst the inmates of the Hospital?—I think the greater number would rather have things remain as they are, and for my own part I may say I hope I shall never see it closed.

548. I suppose there are a number of infirm men who even if it were closed would have to be provided for in some other way?—Yes.

549. And if something were not found for them they would be driven to the workhouse?—I can see nothing else for them.

550. Of the men under your charge, are there any who have left the Hospital and then come back again?—Yes, I have several in my company, but they very soon returned. Serjeants Stradwicke and Bachelor were not out long before they came back again.

551. *Sir A. Haliburton.* Do you know of any who are simply privates who have been out and come back again?—I cannot recollect any of them.

(*The witness withdrew.*)

Edwin Dixon (late serjeant, 1st Dragoon Guards), *examined.*

552. *The Chairman.* How long did you serve in the Army?—21 years.

553. Were you invalided?—No.

554. What was your rate of pension?—1*s.* 11½*d.* a-day.

555. Are you married or single?—Single.

556. What is your age?—62.

557. How long have you been in Chelsea Hospital?—A little over 12 months.

558. Were you admitted soon after your first application?—Yes, in about four months, I think.

559. What is your rank in Chelsea?—Colour-serjeant, and I get 1*s.* a-day for that.

560. Are you comfortable in the Hospital?—Yes.

561. Have you anything to say with regard to the proposal to do away with the Hospital using the funds so obtained for the purpose of increasing the out-pensioners?—No, I am very comfortable as I am, and very well satisfied.

562 Then you do not wish to see that proposal carried into effect?—No.

563. Can you speak for the men under you?—Yes; I have about 100 under me, and think only 10 of them want to go out.

564. Would you say that nine-tenths of the men would prefer to remain as they are?—Yes.

565. I suppose the ten who want to go out would not do so unless they got more pension than when they came in?—No, they would require a substantial addition.

566. Have you any men under you who have gone away, and then come back again?—Not that I am aware of.

(*The witness withdrew.*)

WEDNESDAY, 11TH JULY, 1894

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. R. K. CAUSTON, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Major-General E. A. STUART, *further examined.*

567. *The Chairman.* When you were here before a question was asked you with reference to the origin of the funds of Chelsea Hospital, and you said you would like to consider the point before giving evidence upon it?—You mean as regards the legacy funds.

568. I meant the funds generally; if there is anything you wish to say upon the point we shall be glad to hear it?—With reference to the origin of the funds, I produce the report of the Comptroller and Auditor-General, for the year ending 31st March, 1877 [handing in the same, *vide* Appendix I.], that was the date when the auditing of the Chelsea accounts was first introduced, and in that report the Auditor-General gives a complete history of the funds of the Hospital. Here is also the Comptroller and Auditor-General's report for the year ending 31st March, 1893 [handing in the same, *vide* Appendix II.], and that shows the state of affairs to the end of last year.

569. Do you put in those reports as a reply to Question 32 in your former evidence?—Yes.

570. Are you now prepared to hand in a statement with reference to Questions 35 and 36 of your previous evidence, when you suggested that the property might be disposed of and placed elsewhere with a view to taking in more in-pensioners?—Yes, here is my scheme [handing in the same, *vide* Appendix III.]. I should not have felt authorized to put that in if I had not been specially directed to do so by the Board. I wanted to bring out a balance on that scheme, because I did not know how much the new buildings would cost, and because I did not know what staff the authorities might think it necessary to have. I think it is a feasible scheme because 25,000*l.* is not an extreme sum to name as the rents to be derived from the Chelsea property.

571. You appear to have modified your estimate in this; you now say 1,100 men, but in your former evidence you suggested 1,500?—Yes, but then you see I have a balance of over 10,000*l.*

572. Do I understand that under this proposal you suggest getting rid of Chelsea altogether; that is, pull it down?—Yes, and let the land on building leases. Under the Act of 1875 the Chelsea Commissioners are not authorized to sell the property; they can only let it on lease.

573. But with regard to the present Hospital, you propose to pull it down?—Yes, utilize or sell the old building, it is not worth much.

574. You propose to build a new country hospital?—Yes.

575. Is any provision made in this scheme of yours for the purchase of the ground?—I did not think it necessary to put that in, because it would require only about 30 acres of agricultural land; you see there is a balance of 10,000*l.*

576. The land may be got cheap, but perhaps it would be difficult to get it within a reasonable distance of easy communications?—Yes, perhaps so.

577. I see in this scheme you propose to borrow 100,000*l.* to be paid back in a certain number of years?—Yes.

578. But I rather gathered from your previous statements that this was to be an alternative scheme, your other suggestion being that Chelsea Hospital might be kept as at present and that part of the land should be sold in order to increase the present accommodation?—Yes, I could do that.

579. Do you wish to express any opinion as to which is the more desirable plan?—I should prefer not to do away with such an historic place as Chelsea Hospital if it can be avoided,

580. Can you say whether there is a substantial portion of the land which might be leased without detriment to the Hospital?—Yes, but the increase to the present Hospital would not admit of 500 more, it would admit of only 250 being taken.

581. That scheme would be of smaller character than the one you put forward here, and indeed if adopted it might be carried out by degrees, might it not?—No doubt.

582. I think when you were here before you proposed an alternative scheme, because of the necessity

for providing accommodation for those men who were temporarily disabled?—Yes, it was more on their account than on any other that I proposed it; you see in this present proposal I deal with 350 of those men. Here is a statement showing the numbers placed on the temporary pensions list during the last 13 years [handing in the same, *vide* Appendix IV.].

583. Under the present system what do those men get?—6*d.* a-day. I was very interested in those men as they come home suffering very much from climatic diseases, and with only 6*d.* a-day they cannot afford the food that is necessary to promote their recovery, and that is the reason why I was anxious that their case should be brought before the Committee.

584. How long on the average are they on the temporary pension list?—I cannot say, but, as a matter of fact, they generally pass on to the permanent list, because they do not get sufficient to promote their cure.

585. But even in cases where you provide hospital accommodation for these men till they were cured, after they leave the Hospital, they might probably be placed on the permanent list?—Some of them would, but taking them into the Hospital for a time would promote more cures than now.

586. And the more cured the less the charge on the pension list?—Certainly.

587. Have you ever taken in any pensioners temporarily?—No, we have no authority under the Act to take in temporary pensioners.

588. *Mr. Fitzgerald.* Would it take long for you to prepare a scheme for enlarging the accommodation of the Hospital on its present ground?—It can be done if you wish it.

589. *The Chairman.* That might be treated in a scheme as a whole, or it might be shown as being done gradually by selling portions of the place as required?—Yes, no doubt that can be done.

590. Have you formed any opinion as to whether there is any necessity for increased accommodation for a certain number at the present time?—Yes; here is a statement showing the annual number of applications, admissions, and rejections [handing in same, *vide* Appendix V.]. We have always 100 selected candidates awaiting admission, and it takes a year to get in.

591. *Mr. Causton.* The last time you were here, you suggested that there should be an increase of 1,000 to the present number, 500 to the out-pensioners and 500 to the temporary pensioners; I suppose you meant that, in your opinion, the present buildings could be altered to accommodate that number?—I thought so, but when I reduced my total numbers to 1,100, I had to cut my coat according to my cloth. I think 25,000*l.* is as much as I could put down as the estimated value of the property

592. *The Chairman.* With regard to it taking a year before an in-pensioner, after his application, can get in, I should like to mention that we examined several in-pensioners the other day, but I do not think that in any one case in which we asked the question that a man was kept waiting more than five or six months.—They do not know, I think.

593. The question asked of them was, "How long after your first application had you to wait before you were taken in"? and that is the answer we got.—I think they were mistaken; in former years they may not have had to wait so long. We have over 100 waiting now, and I do not suppose we have more than 60 vacancies a-year.

594. If you got a very deserving case, would you take that man in more quickly, and leave the others out?—No, we generally take them in in their turn, because we do not put down on the list any but the most deserving cases; most of the men have four badges, though some are taken in early on account of blindness.

595. *Mr. Fitzgerald.* You have 100 on the list selected by the Chelsea Commissioners?—Yes.

596. From what list are they selected?—From the general list of candidates.

597. What is the number of candidates?—From 250 to 300 a-year.

598. *The Chairman.* Do I understand that a certain number of those who apply as candidates in the first instance are men who under no circumstances would be admitted?—Very few.

599. There are very few refused because they do not come within the general terms of the Warrant?—That is so; we do not give the reason for non-admission beyond saying that there are so many candidates with stronger claims.

600. Taking the figures given in Appendix D 3 to the report of the Committee of 1882, I see that a list is there given of the number of men admitted every year between 1870 and 1881, the lowest number is 103 in 1877, and the highest number is 149 in 1872, so that if you are correct in your number of admissions now being only 60, there must have been a considerable diminution?—Yes, fewer men go out now, and it is a curious thing that during the last two years there have been fewer deaths.

601. Are there any other reasons which would account for the fewer vacancies?—No, except that I think the men are of much better character now than they were, and they take more care of themselves.

602. With regard to the men you do admit, I should like to ask you whether there is any considerable number of married men who apply and who are refused because they cannot guarantee that their wives and families will be provided for if they are taken into Chelsea?—A small percentage.

603. Can you state at all what number in the course of the year would come under that category?—I cannot give the details.

604. When such a man as that is refused, is there not a *primâ facie* case that he was badly off, and had some claim for consideration?—Yes. The cases all come through my hands, and I am perfectly certain that I can say with accuracy that those men form only a very small percentage.

605. Then the fact that they are mostly single men in the Hospital, is not because married men are refused, but because the single men have no one to look after them outside, and they naturally form the majority of the applicants?—Yes, many of them are widowers. When a man is incapable of being taken care of by his family he then comes to us.

606. Is there any return showing the number of married and single men in the Hospital?—No, we take them all in as single, and a few get married while they are in there.

607. We have had one or two before us who were married men when they were taken in?—I can ascertain how many married men there are in the Hospital.

608. We had a considerable number of pensioners who came here to give evidence, and nearly the whole of the first lot who came were men who expressed their desire to leave the Hospital if they could get a much larger pension outside, perhaps you can inform the Committee whether we are correct in supposing that it was rather the men who had that view who came to give evidence, than the men who were satisfied with the Hospital and merely expressed their views through their serjeants?—Yes, that is the case, many of the men said they were too old and effete and they could not come down. I think if any member of the Committee were to go to Chelsea, and enquire there among the men, they would find that only a very small percentage desired to leave the Hospital, I should think not 3 per cent.

609. One of the serjeants who said he was authorized to speak for the men under him said that he was prepared to say that at least nine-tenths of those men were very well satisfied and did not wish to leave the Hospital under any circumstances?—Yes, and I think if you questioned the men themselves you would find that even a smaller percentage than that desired to leave. I may say that the majority of the men are very anxious as to what this Committee will do, they are very much alarmed lest they should be turned out.

610. I believe you stated the last time you were here that you thought the expenditure per man in the Hospital for the in-pensioners was less than it used to be, I think it was given at 2*s.* 3*d.* in the former enquiry?—The cost was given there as 2*s.* 3*d.*, that was including the Government grant, the grant from the War Office. General Hutt stated that it excluded the amount of out-pension. I have worked out the cost of the in-pensioner upon the figures for maintenance of buildings, and such-like things, and it comes out at 2*s.* 8*d.* a day now.

611. Then as compared with 2*s.* 3*d.*, does your 2*s.* 8*d.* include the out-pension?—Yes, it includes all the expenses excepting the expenses of the superior staff.

612. *Mr. Fitzgerald.* Do the Officers in the Hospital get rations?—No, but they get a certain amount of pay.

613. *The Chairman.* I understand in the calculations that you do not deduct the amount of pension which men were receiving before they came into the Hospital?—No, that is the gross cost, deducting only the pay of the superior staff; General Hutt included the pay of the superior staff, but I do not.

614. Can you say what the average rate of pension is before the men come in?—It is about 11¾*d.* now.

615. Then that would make it altogether 1*s.* 8¼*d.*?—Yes, something like that.

616. 1*s.* 8¼*d.*, as compared with 2*s.* 3*d.*?—No; as the 2*s.* 3*d.* included the pay of the superior staff; the 1*s.* 8¼*d.* compares with 1*s.* 11*d.* in 1880–81.

617. *Sir A. Haliburton.* Heretofore you have always excluded the Secretary's office, but do not the superior staff look after the pensioners?—The Captains of invalids are given appointments there for their own services.

618. Then practically they have no duties?—That is so. The superior staff costs about 4,000*l.*, and General Hutt has put down as surrendered out-pensions about 8,000*l.*, so that there would be a difference of 4,000*l.*, which arises probably from the fact that provisions are much cheaper now than they were.

619. *The Chairman.* With regard to this scheme of yours, is there any provision made here for the necessarily increased staff?—The inferior staff is just doubled.

620. Where is that provided?—That is at the top of the statement in the cost of the establishment for 1,100 in-pensioners, that includes all the staff except the superior staff.

621. I see that you assume that the buildings would cost 200,000*l.*, for which a sum is to be borrowed, repayable in a term of years, but if you expend the capital sum, you reduce the income of the Hospital by about 4,000*l.*, do you not?—Yes.

622. Have you made any provisions for the loss of that 4,000*l.*?—I have put in all the expenses there.

623. Are they the expenses over and above the present expenses?—No, they are the actual expenses of keeping 1,100 pensioners in the country, and building them a home there; it includes everything except the superior staff, and it shows a balance of 10,000*l.*

624. I see that the contribution from Parliament is to be 13,000*l.*?—I thought they would not take it away altogether, that is what they contribute now.

625. *Sir A. Haliburton.* You have not worked the scheme out in detail?—No, that is only a rough scheme, but it is pretty correct.

626. *The Chairman.* With regard to the smaller scheme, I gathered from one of your former answers, that you thought there was a necessity for accommodation being found for 200 more in-pensioners at once?—Yes, I should say 200 at the least.

627. In your opinion, and giving it as the evidence of an expert, do you think there is a sufficient amount of land which could be put into the market without detriment to the present Hospital, to enable you to increase the accommodation of the Hospital by 200 men?—I should think so; but you see we have no authority to sell the land we have, only the authority to let it on building lease.

628. *Sir A. Haliburton.* You would have to get an Act, would you not?—No, that scheme would not require an Act.

629. *The Chairman.* If Parliament thought it desirable that permission should be given to sell, of course they would give it?—Yes, certainly. The Commissioners have now full power to let the land of Chelsea Hospital on building leases, and they can do that under the Act of 1875.

630. Would the Commissioners have full power to carry out such a modified scheme as you have suggested?—I suppose if the Government chose to give their sanction they would.

631. Can you at all point out what you would suggest as the part of land which it would be most desirable to put into the market first, that is supposing you were going to leave the Hospital alone and increase the accommodation?—Yes, I can do that. Here is the complete estate map [handing in the same to the Committee]. [The witness then explained the position of the Hospital and the various buildings to the Committee, and pointed out that the grounds now known as Burton's Court would be the first that could be given up without any effect on the Hospital.]

632. Now coming back to the in-pensioners, will you tell the Committee what they get in Chelsea Hospital?—There are six colour-serjeants at 1*s.* a-day, 24 company-serjeants at 8*d.*, 24 corporals at 4*d.*, six drummers at 3*d.*, 50 privates, first class, at 2*d.*, 50 privates, second class, at 1½*d.*, and 378 privates, third class, at 1*d.* But all the privates now get an extra 1*d.* The amount given as that extra 1*d.* absorbs the rent that we get from the land formerly let to Sir William Gordon.

633. Then I understand that the men are allowed to sell the clothing given to them by the Hospital?—Yes, after being worn for the prescribed period, and they appropriate the money.

634. How much do you think they would get?—I suppose the highest price would be about 25*s.*, and the lowest about 10*s.*; it all depends upon whether the man keeps his clothing in good order.

635. Do the serjeants sell their clothing too?—Yes, everybody sells.

636. Do you think that is the most economical way of disposing of the clothing of the men?—Personally I think that the clothing ought not to be sold at all until it is worn out. The money that they get for their clothes does not do them any good.

637. Do you think if the average of the money that they now get for selling their clothes was made up to the men, and they were prevented from selling their clothes, that that would be a more economical arrangement for Chelsea Hospital?—No.

638. They get so much for selling it now, and they might consider it a hardship if you prevented them from doing that in future; but supposing you made it up to them in money, and then made the clothing last as long as it reasonably could in a proper condition, do you think that that would be a more economical arrangement for the Hospital?—If you think the property belongs to them, I think it better that it should remain as it is.

639. *Sir A. Haliburton.* The invalids do not wear their uniforms, do they?—No.

640. Do they sell it at the end of the year?—Yes.

641. Some of it then has never been worn at all?—That is so.

642. *Mr. Fitzgerald.* In answer to Question 42 of your last evidence, you said that you would like to increase the total numbers up to 1,500, but in your scheme handed in to-day you refer to 1,100. In your own opinion would it be more advantageous to the Service, and to the in-pensioners, if you moved the present Hospital into the country into a building capable of holding 1,100 men, or to increase the present building at Chelsea, supposing you could find

accommodation on the present site for the same 1,100 men?—I think it would be better for their health, but against that there is to be weighed the selling of an historical place.

643. But supposing we could accommodate the same number, and yet retain Chelsea with all its attractions?—I think that would weigh, in my opinion, against moving the Hospital into the country.

644. *Sir A. Haliburton.* Would it not be rather dull for the in-pensioners if the building were in the country?—I think it would be better for their health.

645. Would they not be bored to death?—I think not.

646. *Mr. Fitzgerald.* Have you formed any opinion as to whether it would be possible to sell a section of the present estate so as to increase the accommodation of the present buildings, in order to take in 1,100 men?—If you are going to have the property valued, I think you could yourselves form an opinion then.

647. *Sir A. Haliburton.* This plot is about 10 acres, and if you get 100,000*l.* for it you can spend that amount somewhere in buildings?—Perhaps so.

648. *The Chairman.* With regard to the admissions into the Hospital, are a great number of the applicants infirm men?—They have to be certified by the medical authority that they are incapable of supplementing their pensions by any work; that is according to the Warrant.

649. Do you select the more infirm men, and the men who are least able to supplement their pensions, when you are granting admissions?—Yes, and we also take into consideration the best characters. The Royal Warrant of the 6th of September, 1875, which regulates the admission of in-pensioners, lays down in paragraph 17 of the General Regulations that "The in-pension establishment is designed as a refuge for deserving out-pensioners, and shall be restricted to those who are incapable of supplementing their pensions by their own labour. Candidates for admission shall not be less than 55 years of age, and shall have completed full service in Our Army. The loss of one or more limbs, severe bodily wounds or other injuries, or disabilities, the result of Army service unfitting men for labour in civil life may render them eligible for in-pensions at earlier ages."

650. *Sir A. Haliburton.* When you are taking in men who are infirm, do you give the preference to the man who is infirm with a small pension over a man who is equally infirm, but with a larger pension?—Yes; but we go very much upon character and length of service, and, as a rule, we do not take in men who have had less than 21 years' service.

651. We had a man here the other day who had had only 8 years' service?—Yes, I think I know the man you mean; but he was taken in on account of his service in Egypt.

652. If there were an infirm man with 2*s.* 6*d.* a-day out-pension, would you take him before a man who was equally infirm, but with only 9*d.* a-day?—2*s.* 6*d.* a-day would indicate that he was a more desirable man, because he was a serjeant.

653. It would show equally that he was better able to support himself outside than the other one?—Yes, but then you must take into consideration his service.

654. *The Chairman.* I asked Serjeant Farnham this question: "Did you get taken in at once when you applied?" and he said, "Yes, I wrote to the Duke of Cambridge; he considered my case, and took me in"?—That was probably because he had suffered so much in Egypt.

655. *Sir A. Haliburton.* Do you look upon the claims of men who have been in recent campaigns as being stronger than the claims of men who have been in former campaigns?—No, it is rather the other way; it is better for men to have long service.

656. Is that the general rule?—Yes; but we also take into consideration foreign service and campaigns.

657. *The Chairman.* Have you seen the memorandum which has been issued by the Army Age Pensioners' Association?—Yes.

658. Have you any remarks to make upon that?—No, nothing, except that they have a very exaggerated idea as to the value of the property.

659. They think that Chelsea should be shut up, and the funds used for the purpose of giving 6*d.* a-day to as many men over 55 years of age as the amount would admit of; do you think that a fair way of dividing the money supposing that it were desirable that the Hospital should be shut up?—It would not be a feasible thing, there would not be sufficient.

660. But supposing it were?—I do not think it would be any good, because 6*d.* a-day would not be enough for an infirm man; besides, I do not think it would go farther than about 3,000 men.

661. It would not enable those men in Chelsea now to keep themselves properly outside, would it?—No, nothing like it. The Association have an exaggerated idea with regard to the income of the Hospital.

662. I have already asked you questions with regard to the origin of the funds, and in your former evidence in answer to Question 18, you said you would like to leave it over, have you anything further to say upon the point?—I have already handed in the report of the Auditor-General showing how the funds were derived.

663. *Sir A. Haliburton.* The question referred to the poundage, and the stoppage from the day's pay and prize money?—As to how the land was bought.

664. *The Chairman.* The question turned upon the argumentative point whether those funds came out of the soldiers' pay or not?—I have not a sufficient acquaintance with the subject to answer that; I can only say that we derive the land under the Chelsea Land Act of 1875. The land was given to the Commissioners in trust for the pensioners by that Act, and I have no means of going behind it.

665. *Sir A. Haliburton.* Have you gone into the history of the question as to how it stood about 1680?—No, I did not think there was any occasion to do that.

666. *The Chairman.* Have you anything to say with regard to the Prize Fund?—Yes, here is a statement of the net amount found to have been transferred from the unclaimed Army prize money to the Exchequer at the end of each year, from 1841 to 1854 [handing in the same to the Committee, *vide* Appendix VI.]. Out of the Prize Fund, 40,000*l.* was given for the Chelsea Asylum, 30,000*l.* for the purchase of land, and 10,000*l.* for the repair of buildings under the Act of Parliament, and 41,144*l.* 0*s.* 8*d.* was paid over to the Exchequer as unpaid balances. Attached to that statement I have already handed in, you will find copies of the correspondence which has passed between the Treasury, the War Office, and Chelsea, with regard to the adjustment of that final balance. The correspondence suddenly ceased, and there the matter remains. The Association have spoken of the alienation of ground, but all that land has come back again in various ways.

667. *The Chairman.* They refer to the details quoted in Appendix G to the Report of the Committee of 1870?—All that has come back again, and as a matter of fact the land is now much as it was when the institution was started. If you look at the plan you will see a part coloured pink, that was called the Governor's meadow, and was granted to Lord Ranelagh by the Crown for his losses in the wars in Ireland, but that was bought back again out of the legacies left by Lord Ranelagh himself. These other portions were bought back in various ways from various other legacies, so that the ground remains very much as it was.

668. But it had to be bought back?—Yes, and most of it was bought back out of the legacies left by Lord Ranelagh and others.

669. Then there are two other portions besides that 25 acres, namely, the portion leased to Sir William Gordon, of 3 acres and 2 roods?—That came back.

670. The other portion of 1 acre was given up to be used for a public road?—Yes.

671. *Sir A. Haliburton.* Had you an Act for giving that up as a road?—No, the Commissioners gave that up of themselves, and they made an arrangement with the parish authorities that the road was to be properly kept and lighted, and on account of getting that road the parish clear away the snow from the side walks now. From these facts you see that there is practically no loss of ground to the institution although the Association have referred to an alienation of 29 acres.

672. *The Chairman.* What is your view with regard to the 41,144*l.* which is alleged to have been taken fom Chelsea Hospital?—That amount represented the unexpended balances, and was transferred to the Exchequer at the end of the financial year, but the balances now are carried on.

673. Do you say that it was taken irregularly?—Yes, it was so considered by the Commissioners at the time.

674. Supposing the money had not been taken, would not Chelsea have got so much less in the amounts granted by Parliament?—I do not know. If they were private funds of course they would have been part of the general funds of the Hospital, but if they were public funds, then of course the Hospital would have asked less.

675. Whether they were public or private funds is it not the custom for the Secretary of State for War to propose in an estimate to Parliament to take sufficient money to make up what is required for the expenditure at Chelsea?—Yes; the Secretary of State for War does not in his estimate utilize the private funds for the up-keep of the Hospital.

676. What I want to get at is this, supposing the income and revenues at the Hospital were from public or private funds, does the Secretary of State in his estimate supplement the amount so derived by an amount sufficiently large to cover the expenditure of the Hospital?—I should like to say that the up-keep of the Hospital has to come from public funds and not from private funds.

677. *Sir A. Haliburton.* Is there not an annual vote from Parliament for Chelsea Hospital?—Yes.

678. What for?—For the up-keep of the Hospital.

679 *The Chairman.* And that is the balance that is required to make the revenue and expenditure sides of the account level?—Yes.

680. If the funds of the Hospital had been larger by this 40,000*l.* the estimate required would have been so much less?—I suppose the Secretary of State for War would have proposed to the Commissioners to draw less money from the public funds.

681. *Sir A. Haliburton.* You have, I see, at Chelsea 79,000*l.* of Army prize money?—Yes.

682. And you have had at various times enormous sums of unclaimed prize money?—Yes.

683. And from year to year you used to appropriate something out of that fund, in reduction of the votes of Parliament for Chelsea Hospital, are you aware of that?—Yes. The 79,000*l.* is now placed for the general purposes of the Hospital under the Act of Parliament of George IV.

684. And that always was the case?—Yes, since 1809.

685. Are you aware of what was done with the difference between that 79,000*l.* and the 556,000*l.* or thereabouts that you have had at various times?—No.

686. You do not know that it was taken in reduction of the estimates?—No. The amount of Army prize money amounted last year to 79,300*l.* and the total funds of the Hospital amount to 101,533*l.*

687. That 79,300*l.* the Government might at any time take in aid of the estimates of the year for out-pensions?—I understand that it is altogether placed for the benefit of the general purposes of the Hospital, not for out-pensions but for in-pensions.

688. Was not the 556,000*l.* equally placed at the general disposal of the Hospital by that Act, and do you know how that amount was disposed of?—No.

(*The witness withdrew.*)

H.R.H. The Duke of Cambridge, K.G., *examined.*

689. *The Chairman.* I think your Royal Highness is aware that we are asked to report whether the present revenues and funds of Chelsea Hospital can be used in a more advantageous manner for the benefit of the Army, and a suggestion has been made with regard to that, that in the interests of the pensioners and the Service generally, Chelsea and Kilmainham might be disposed of?—That would be a fatal error for everybody concerned, those Hospitals are the things which the old soldiers depend upon. The great thing is to keep the old soldier from dying in the workhouse. Soldiers and sailors are asking that they may not die in the workhouse. In Chelsea the men are looked after up to their last moments, and they could not be looked after better.

690. Then the suggestion that those institutions should be disposed of, and the money given to out-pensioners, is not in your view a good one?—Not at all; those out-pensioners get what they knew they would get when they enlisted, they lose nothing; but the Hospital is a good thing for them if they lose their health. I should like to make the Hospital as open as possible, and if you can increase the number there, I think that would be a good thing for the men themselves, of whom there are hundreds who die with nobody to take any notice of them; they die either in the workhouse or in a miserable way in some wretched lodging, and those men, I think, ought to have accommodation in Chelsea, certainly as far as the building will admit.

691. With regard to the most infirm of the in-pensioners, I suppose under any circumstances it would be absolutely essential to make some provision for them in order to keep them out of the workhouse?—Yes. Greenwich has been done away with, and it is said the alteration has succeeded; I do not know whether it has or not, but the conditions of life for the soldier and sailor are absolutely distinct. In the Army there is continuity of life, because the men are always in barracks, in one and the same regiment, and therefore all their surroundings throughout their lives are much-of-a-muchness. But with a sailor it is different, he is probably only on a ship for a short time, and he may never meet any of the men he is then with all through the rest of his service. Therefore the sentiment for Chelsea is much stronger in the Army than the feeling for Greenwich was in the Navy.

692. Quite apart from the question of its funds, which are in a very different position from those of Greenwich, you think there are distinct reasons why Chelsea should not be done away with?—Yes, certainly; there are strong reasons why the soldier should look to Chelsea and Kilmainham, but there are not the same reasons why the sailor should look to Greenwich.

693. At present it takes some time before the men can be admitted after they apply to enter Chelsea, and it has been suggested that by the sale of some of the land it might be possible to increase the present accommodation without a further charge on the

estimates; does that suggestion meet with your approval?—I think that is quite desirable so long as it does not take any of the land we might possibly require hereafter for Hospital purposes, and so long as it does not interfere with the health of the men; I think they ought not to be crowded in there with houses. If that land is let I think there ought to be a condition that they should build a good class of house and not a small class; it is rather a low part of London and you must be careful of that. But otherwise I am all for that proposal, the Gordon property was leased in that way.

694. I understand that under the terms of the present Act the Commissioners cannot sell, but they can lease?—Yes, that is so.

695. It has been suggested that Burton's Court might be put into the market, and if that were done it would bring a considerable sum?—I think it would be a pity to close that place. I am in favour of open spaces for London, and there is not much open space down in that locality.

696. *Sir A. Haliburton* There is the river on the other side?—It might be done on that side. I would rather it should not be touched if you can avoid it, but of course that is quite a secondary consideration in my mind as compared with maintaining Chelsea.

697. *The Chairman.* Supposing any of the land were realized and the revenue of Chelsea increased in that way, and it was found desirable to increase the accommodation of Chelsea very much, do you think it would be better to keep it in its present position or would you move it into the country?—Leave it where it is. I have only just this moment come from the Duke of York's School at Chelsea, which they always wanted to move, but I have seen no sick there; and the lads look happy and healthy there, they are better in London than in the country provided they are on good soil.

698. I suppose the old associations connected with Chelsea form a considerable argument in favour of continuing it?—Yes. Chelsea Hospital and Chelsea School have similar interests in London, because a great number of the relations of the men and the boys are living in London. It would be a great drawback to separate them; therefore leave them alone (of course under proper restrictions), because they like to feel that they belong to the outer world, while they have all the comfort the Hospital or School can give them as men or boys. I am told that they are a little bit stiff in the way in which they admit some of these old men into the Hospital. I think they ought to be generous, but not lax, in the admissions.

699. *Sir A. Haliburton.* I presume you think the Hospital ought to be kept for the infirm soldiers rather than the able-bodied men?—Yes, and there are plenty of them.

700. You think they ought to be generous to the infirm rather than to the able-bodied?—Yes, I think the infirm ought to be considered first.

701. *The Chairman.* We understand that the number of vacancies each year is very much less than it used to be?—That I cannot speak to, but I have heard it is so.

702. And as there are such a number of applicants, they have to wait?—Yes; and that proves what I say, that the men appreciate the advantages of going there. My own impression is that Chelsea is a most valuable old institution, and one that really the Army can hardly go on without, and having such a beautiful establishment improve it if necessary, but do not disestablish it.

703. *Sir A. Haliburton.* In the scheme proposed to us for closing it, the question arose how to deal with the infirm men among the pensioners, and it was suggested that they should be sent into the military hospitals?—Leave them as they are, they feel that there is a place they can go to in their old age, and they know that the State cares for them.

704. *The Chairman.* A point has been mentioned, namely, that with regard to temporarily disabled men, whom it is thought might be cured more quickly if taken into the Hospital?—If you can give more accommodation, and take them in, I do not see any objection to that; I am all for them, and I think it is a very good idea, but leave the establishment as it is, and let the place for the temporary men be a sort of addendum.

705. *Sir A. Haliburton.* You would not make that addition at the expense of the in-pensioners?—I would not give more to the out-pensioners, at the expense of Chelsea Hospital; they knew exactly what they were entitled to when they came into the Service. If their pensions ought to be improved let that be done as a direct grant, but not at the sacrifice of the Hospital. My remarks refer equally to Kilmainham as to Chelsea.

(*The witness withdrew.*)

Mr. William Seed, *examined.*

706. *The Chairman.* You are a Principal Clerk in the War Office, I believe?—Yes.

707. And I understand that you are prepared to give the Committee evidence with regard to the origin of the funds with which Chelsea Hospital was founded?—Yes

708. *Sir A. Haliburton.* Dealing at present with the question of pay only, and taking the rate of pay at the latter end of the 17th century (that is about the time Chelsea Hospital was built), was the pay of the rank and and file of all arms dealt with on the same principles?—Yes.

709. Taking only the pay of the private of Infantry, the largest class in the Army, can you show the Committee any vote for Army supplies in the latter part of the 17th century?—Yes, I produce a copy of the Army Estimates for 1692, taken from the journals of the House of Commons, Volume X., 1688 to 1693 [handing same to Committee, *vide* Appendix VII., Annex 9.]

710. That simply shows the total sum voted for each regiment; what was the authority under which those funds were dealt with in detail?—The House of Commons merely voted a lump sum for the officers, non-commissioned officers and men in each regiment, leaving the distribution of the money to be regulated by Royal Warrant. The system is best described by the Commissioners appointed by the House of Commons in 1783 to enquire into the public accounts of the United Kingdom, when they say (page 14 of their report), "The establishment under the Royal Sign Manual, with the regulation of the subsistence, and the Warrants directing the deductions, annexed thereto, is the instrument that regulates the pay of the Army. It contains the distribution of the whole sum voted by Parliament for defraying the charge of the land forces in certain portions among the several regiments, troops, companies, and garrisons"; (pp. 18 and 19), "The establishment which pursues the estimate for the Army sevices presented to the House of Commons, and is the instrument that contains the distribution of the sum granted for these services originates in the War Office; and the authority for every payment made by the

Paymaster-General, pursuant to that establishment, passes through the same office . . . consequently every alteration in the mode of payment must take its rise there likewise." The Establishment Warrant, dated 1684, in the reign of Charles II., directed the issue of 3*s.* 6*d.* a-week to the private soldier of Infantry for subsistence, with 2*d.* a-day as off-reckonings, which were to be cleared off before the end of the succeeding muster. The various Warrants annexed to that Establishment Warrant directed that certain deductions should be made from the gross pay that was therein allotted for the private of Infantry. The first was a deduction of 12*d.* in the pound on the gross pay for Chelsea and Exchequer fees; the second 12*d.* in the pound on the sale of Officers' commissions, which really does not affect this Committee, and the third a deduction of one day's pay in every year (two days in leap year) towards the building of Chelsea Hospital.

711. What was the gross pay at that time?—8*d.* a-day.

712. What expenses did that cover?—The whole cost of the maintenance of a private of Infantry; his food, lodging, clothing, and everything else.

713. What expenses was the 6*d.*, that is the 8*d.* less the off-reckonings, supposed to cover?—The 6*d.* was subsistence money, and covered the cost of the soldier's pay, food, lodging, and necessaries, &c.

714. That 6*d.* was personal to the soldiers?—Yes.

715. What was done with the balance of the gross pay, that is the 2*d.*?—The 2*d.* was for "off-reckonings," and was originally intended to cover the cost of the clothing, but from time to time there were various charges ordered by Royal Warrants to be made against the "off-reckonings."

716. What were they?—The cost of clothing the soldier was the original charge, then came a charge for agency of 2*d.* in the pound on the gross pay; that was for the purpose of paying the agent; then there came the deductions for poundage and the day's pay for Hospital money.

717. Can you show us an account giving in detail the pay of a corps for that period, and also showing the then authorized charges against the off-reckonings?—Yes, I produce an account for the year 1695, which shows the distribution of the gross pay and off-reckonings of a Line regiment, the Royal Fusiliers (*vide* Appendix VII., Annex 11.)

718. Among the charges made against the off-reckonings, I see there is one for "poundage," will you explain the origin of the "poundage" therein referred to?—It originated in 1662, that is two years after the accession of Charles II. It appears that at first the troops were paid in arrear, but that was not satisfactory, and as there were complaints, arrangements were made between Sir Stephen Fox, who was then the Paymaster-General of the Army, and the Colonels commanding regiments, that he should issue the pay allowed for subsistence in advance, and for doing so he should be allowed 5 per cent. on the gross pay of the Army for his trouble. We know from various sources that that was done, and in Pepy's Diary, under date 16th January, 1666-67, we come across this entry, "Sir Stephen Fox told me his whole mystery in the business of the interest he pays as Treasurer for the Army. They give him 12*d.* per pound quite through the Army, with the condition to be paid weekly. This he undertakes for his own private credit, and to be paid by the King at the end of every four months; then for all the time he stays longer, my Lord Treasurer allows him by agreement 8 per cent. per annum for the clearance. So that, in fine, he hath about 12 per cent. from the King and Army, for fifteen or sixteen months interest, out of which he gains soundly, his expenses being about 130,000*l.* per annum."

719. What was the gross pay of the soldier before the poundage was instituted in 1662?—In 1660 the gross pay was 8*d.*

720. What was it in 1679?—Still 8*d.* The poundage was instituted in 1662, and lasted till 1679, when Sir Stephen Fox, in consequence of the difficulty in getting money from the Crown, was obliged to surrender or give up the arrangement. The same system was, however, continued under the Royal Warrant dated 31st December, 1679, which directed the personal pay or subsistence to be issued in advance by the Treasury, the poundage to be deducted as before, one-third of it going for Exchequer fees and the charges for the Paymaster's office, and the other two-thirds being used for lessening the cost of the establishment of the Army. The phrase "establishment of the Army" meant in those days the numbers and the rates of pay which were assigned to the different ranks in the Army.

721. What was the history of the poundage subsequent to that date, 1679?—In 1684, it was directed by the Royal Warrant, dated 17th March, 1684, that the poundage should be applied in a different way, one-third was still to go for the Exchequer fees and the Paymaster's office, but the other two-thirds were to "remain in the said Paymaster's hands upon account to be disposed of either towards erecting, building, and maintaining Our Royal Hospital at Chelsea for aged, maimed and infirm land soldiers, or towards the payment of the establishment of Our Forces, as We shall from time to time direct, by the Commissioners of our Treasury."

722. That gives Chelsea two-thirds of the poundage, but is there not a document earlier than that which gives Chelsea one-third?—There is a letter under the Privy Seal, dated 17th May, 1683, giving one-third of the poundage for the use of Chelsea Hospital from the 31st December, 1680.

723. Was that two-thirds absolutely given to Chelsea, or did it depend upon the requirements of Chelsea?—Taking it from the Warrants, I should say it depended upon the requirements of Chelsea.

724. *The Chairman.* If it was according to the requirements, how could it be a fixed sum of two-thirds?—If they did not want it all, the balance went towards the reduction in the cost of the Army.

725. But, as a matter of fact, they always did have the whole of it, did they not?—I could not be positive about that; but, taking the Chelsea accounts, of which there is an abstract given here [handing same to the Committee], there is very little doubt that the whole of this poundage on the pay, as long as it existed, was devoted to the purposes of Chelsea Hospital.

726. *Sir A. Haliburton.* What was the subsistence or personal pay of the soldier before the poundage was deducted?—6*d.* a-day.

727. What was it in 1679, and after the poundage was deducted?—6*d.* a-day.

728. The pay was the same before and after the imposition of poundage?—It was.

729. It seems, therefore, that the personal pay of the soldier was not affected by the poundage; how then was the poundage fund provided?—Out of the off-reckonings.

730. Can you produce any authority for its being so charged against the off-reckonings?—Yes, the Royal Warrant of 31st December, 1679. The gross pay of the Army being 8*d.* a-day, and the amount issued for subsistence being 6*d.*, the stoppage of 5 per cent. which was ordered by that Warrant must have come out of the off-reckonings.

731. Can you produce any account of that period which will show that the poundage was actually charged against the off-reckonings?—Yes, the account of 1695 [handing in the same, *vide* Appendix VII., Annex 11.] My reading of the Warrant of 1679 is confirmed by the Royal Warrant of 1687, which says that the off-reckonings are to be employed for the clothing, poundage, and all other remaining expenses.

732. Then all the evidence you have to give shows that the poundage came out of the off-reckonings, and not out of the soldiers' pay?—Yes.

733. *The Chairman.* Supposing the services which the off-reckonings were devoted to cover were satisfied, would the soldier have got anything out of the

off-reckonings, under any circumstances, for himself?—No, because the balance of the off-reckonings, whatever was left, went into the Colonel's own pocket. That is shown by the proceedings of the House of Commons in 1713, 1783, and again in 1812, when it was ascertained that the Colonel's profit, whatever it was, was made out of the off-reckonings. That profit was an acknowledged thing. It was subsequently converted into pay, and it was, I believe, the origin of the 1,000*l.* a-year afterwards allowed to Colonels of regiments.

734. Then any service, such as poundage, for which the off-reckonings had to provide, could not in any way be said to come out of the soldier's pocket?—Certainly not.

735. If it came out of anybody's pocket, it came out of the Colonel's pocket?—That is so; at no time was it any part of the men's pay.

736. *Sir A. Haliburton.* Can you tell us the history of what was called "hospital money"?—Yes, that deduction was made in accordance with the Warrant of Charles II., dated 17th June, 1684, where it is laid down that for the purpose of erecting a hospital for old maimed soldiers, "One day's pay be drawn and deducted from Our Guards and Garrisons every year, and two days every leap year, towards the building of Our Royal Hospital and maintenance of such soldiers as, having served Us by land shall be provided for therein."

737. Did that stoppage come out of the soldiers' pay?—No, and that is proved by the Warrant of 27th November, 1687, which directed that the "Off-reckonings shall be employed by the Colonels of each respective regiment for the clothing and poundage, and satisfy all other remaining expenses." That stoppage for the Hospital was one of the "remaining expenses." That shows without doubt what the practice was, and it is further confirmed by the account of 1695, already referred to, which shows that the day's pay is deducted out of the off-reckonings in the same way as the poundage was.

738. That stoppage was for the benefit of in-pensioners, was it not?—Yes.

739. Then the Committee are to understand that neither the poundage nor the "Hospital money" were stopped out of the subsistence or personal pay of the soldier?—Decidedly.

740. Can you produce any authoritative document supporting your statements?—Yes. Here is a volume (producing the same) of Parliamentary papers relating to the Session of 1851 (Volume XXXIII.), at page 155 of which I find a copy of a letter from the Right Honourable Edward Ellice to Viscount Melbourne, who was then the Prime Minister, upon the subject of the projected conversion of Kilmainham Hospital into an artillery barrack. The same questions appear to have arisen then about the Hospital having been built out of the stoppages for poundage and the day's pay. The pith of his letter is as follows: "But it is remarkable that the privates and non-commissioned officers of the Army did not in reality contribute anything and were in no respect whatever affected by these deductions. The gross or full-pay of the soldier was divided into subsistence and off-reckonings. The subsistence was the man's personal pay and was all over which he had control; the off-reckoning was the portion of his full-pay set apart, and allowed to the Colonel for providing the clothing and accoutrements of his men, and after paying 2*d.* in the pound to the agent the balance was the Colonel's admitted profit. The two deductions for poundage and Hospital money were not made from the subsistence, or the soldier's portion of his gross pay, but from the off-reckoning; thus the contributions to the Hospital were in reality taken from the Colonel's clothing profit, and not from the pay of the soldiers, who received as before his net subsistence, viz., 6*d.* a-day in the Infantry." You will find that letter more fully set out in my memorandum (Appendix VII, Annex XII.). In the report of the House of Commons Commissioners, dated 17th March, 1783, they state (page 21), "The fund for the clothing is the net off-reckonings, that is the difference between the subsistence of the non-commissioned officers and private men and their full pay, after deducting the poundage, hospital, and agency upon their full pay. Though this total sum allotted for a regiment is directed by the Pay Warrant to be paid to the Colonel and his agent endorses it, yet this clothing fund is not applied by the Colonel himself. The Paymaster-General is directed by the Mutiny Act to pay the off-reckonings to such person only as has a regular assignment of them, and therefore the Colonel always assigns them either to the clothier or to his own agent, the assignee receives them from the Paymaster-General, and thereout defrays the cost of all the expenses attending the clothing, and for the residue he accounts to the Colonel (page 22). The off-reckonings being calculated upon the full establishment, including the non-effective contingent and warrant men, and clothing being procured for the effectives only, a surplus from this fund must accrue to the Colonel, and the more defective the regiment the greater will be that surplus." That confirms what Mr. Ellice stated in 1834 and what I have stated now.

741. Can you give us any explanation as to the probable origin of the idea that the Hospital was built out of moneys taken from the soldier?—I think that is rather a natural conclusion for persons to arrive at, speaking as things stand at present. The pay of the soldier, as we now understand the term "pay," is voted by Parliament separately in the Estimates, and that has been the case since 1783. Before that date, as I have already shown, Parliament voted the pay in gross, and that pay covered the whole cost of the soldier's maintenance.

742. Then the term "pay" in those days meant the cost of the Army?—Yes.

743. And the cost of supplies and stores, and such like things, was all lumped under the head of "pay"?—Yes.

744. Does the memorandum you have handed in embody the main points of your evidence?—Yes; it also gives a table, showing the pay and allowances of privates of Infantry, from 1660 to 24th December, 1770, and it details the various items included in the off-reckonings.

745. Have you been able to trace from the beginning the term "off-reckonings," and how it occurred?—The term is first used in the Warrant of 1679.

746. I suppose the meaning of it was something reckoned off from the pay?—Yes, but things were not at all clear, as can be seen by the report of the House of Commons Committee of 1783, where, after taking certain evidence, they say, "We have been unable to trace this extensive branch of the public expenditure through its various mazes." You will find that they refer to the matter in much the same way in other parts of the proceedings of the Committee. The experts who had to deal with the 8*d.* a-day had to split it up into its various component parts, keeping back so much for this and so much for that until the 6*d.* got into the soldiers' hands.

(*The witness withdrew.*)

THURSDAY, 12TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. JOHN E. ELLIS, M.P.
Mr. R. K. CAUSTON, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Mr. WILLIAM SEED, *further examined.*

747. *Sir A. Haliburton.* Have you looked into the question of the poundage deducted from Chelsea pensions?—Yes, I hand in a memorandum on the subject (*vide* Appendix VIII.)

748. Will you tell the Committee when and why that stoppage was first instituted, and when it was modified, and when finally abolished?—It dates from 1754; prior to that date the pensions of soldiers had been paid annually in arrear. This system gave rise to great abuses which were sought to be remedied by the Act of 1754 (George II., cap I.), the preamble of which is as follows: "Whereas the out-pensioners of the Royal Hospital at Chelsea for the relief of maimed and worn-out soldiers are by the present method of payment of the out-pension (namely, the payment of a year's pension only after the same has become due) exposed to sundry and great hardships and distresses. and the said out-pensioners, on their admission to the pension, necessitated to take up money for present subsistence on credit of persons called money-lenders, on terms many times oppressive and usurious, to the extreme detriment of these meritorious objects of the Royal Bounty and generous provision of Parliament, and to the unwarrantable emoluments of persons who make advantage of their necessities. For the prevention of all which abuses and mischiefs be it enacted by the King's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that all assignments bargains, sales, contracts, orders, agreements, or securities whatsoever, made by any out-pensioner, for, upon, or in respect of any sum or sums of money to become due, for or on account of the out-pension of the Royal Hospital at Chelsea, to such out-pensioners who shall be admitted thereunto, from and after the twenty-fifth day of December, one thousand seven hundred and fifty-four, shall be absolutely null and void to all intents and purposes." The Act of 1754 fixed the rate of poundage at 1*s.*, and that rate was continued until 1833, when the 3rd and 4th of William IV. reduced it from 1*s.* to 6*d.* Poundage on pensions was finally abolished in 1847 by 10th Vict., cap. 4.

749. Did the out-pensioners receive a benefit supposed to be equivalent in value to the stoppage?—Yes, they received their pensions half-yearly in advance, instead of annually in arrear.

750. *The Chairman.* What was the rate of the poundage?—1*s.* in the pound, or 5 per cent.

751. Were the pensions a year in arrear?—Yes, as recited in the Act.

752. Is there anything to show how long the pensions were generally in arrear?—The Act shows that they were not payable until the end of every 12 months, and that they were actually issued in that manner. A man admitted to pension, say this month, would not get any pension until 12 months hence.

753. Then they were 12 months in arrear at least?—Yes.

754. 5 per cent. may be taken as the interest on their pensions for the year?—There would be expenses entailed for extra clerks at Chelsea to pay the pensioners twice a year.

755. Do we understand that under an Act of Parliament they were not entitled to their pensions till the end of the year in which they were originally due?—I do not think there was any Act of Parliament regulating the payment of pensions before 1754.

756. *Sir A. Haliburton.* There was an Act fixing the rate at 5*d.*, and directing the payment annually in arrear, I think the date of that Act is 1703?—I will have that looked up. I think the preamble I have just read to you clearly shows what the practice was.

757. *The Chairman.* That shows the method, but it does not absolutely show whether the method so adopted was legal or not?—Perhaps not.

758. *Sir A. Haliburton.* How did the Act of 1754 direct the poundage to be disposed of?—It directed that the poundage from pensions should be applied in the manner in which the King, by Warrant, should direct.

759. Then the Act itself did not give the money to Chelsea?—No.

760. Were any Royal Warrants issued under the powers conferred by the Act, and if so, in what way did they dispose of the poundage deducted from pensions?—It appears from the statements at pages 387 and 388 of the Report of the Commissioners of Military Enquiry of 1812, that very few such Warrants were issued in the earlier years after 1754. The Commissioners appear to have applied the funds for the uses of the Hospital without Warrant, and subsequently obtained covering Warrants. In later years, as provided for in the Act of 1754, Warrants were regularly issued for the application of these funds to the purposes of Chelsea Hospital. Here are two specimen Warrants [handing in the same to the Committee, *vide* Appendix IX.], one dealing with 30,000*l.*, and dated 29th June, 1808, and the other dated 13th day of March, 1841. The latter directs that all deductions on account of poundage, made after 31st March, 1841, shall be applied in aid of the Parliamentary grants made, or

thereafter made, for the payment of out-pensioners. It further directs that the balance of the fund on 31st March, 1841, shall be applied in aid of the Parliamentary grant for the year ending 31st March, 1841.

761. Do you trace any instances in which the proceeds of the funds were actually taken in aid of the votes of Parliament?—Yes, in 1809–10, in Lord Palmerston's time, a sum of 20,851*l.* 15*s.* 3*d.* was deducted from the Estimates for the out-pensions of Chelsea, leaving a net charge of 401,724*l.* 11*s.* 6*d.* to be voted by Parliament. In the following year, that is, 1810–11, a sum of 21,567*l.* 6*s.* 4*d.* was deducted in aid of the vote for out-pensions at Chelsea, and similar deductions were made in earlier and later years. Here are the estimates of the charges of out-pensioners for 1809–10 and 1810–11 [handing in the same to the Committee, *vide* Appendix X., Annexes 1 and 2].

762. Is there any evidence that this fund was intended to be specially used for the benefit of the out-pensioners, that is, in augmentation of their pensions?—No; it was always regarded, and used, as a public fund, available in aid of the Vote of Parliament for the services of Chelsea Hospital.

763. Do you mean for Chelsea as a building, or for the services of Chelsea?—For the services of Chelsea.

764. Both for in-pension and out-pension?—Yes, certainly.

765. What are your reasons for that conclusion?—I arrive at that conclusion after looking at the votes and the estimates of the different years, where I find that sums are taken as appropriations in aid; and certainly, in the year I have quoted, there was a deduction from the out-pension vote. Previously the votes were taken separately, one for out-pensions, and one for in-pensions, and that is shown in the estimates for the year 1801, where there are two votes taken for Chelsea, Vote 18 and Vote 19, the first for in-pensions, and the second for out-pensions. From each of these Estimates there is a sum deducted for poundage, leaving the net sum to be voted.

766. *The Chairman.* Then there was a certain sum deducted from the Estimates for pensioners?—Yes, from both; and both the votes are for the services of Chelsea.

767. *Sir A. Haliburton.* Did the pensioners, in consequence of those funds being taken in aid of the Parliamentary votes, lose any money which they would have got if it had not been taken in aid of those votes?—Certainly not.

768. If they had not taken those funds in aid of the Parliamentary vote, the vote would have been larger by those amounts?—Yes.

769. *Mr. Ellis.* In other words, it was calculated that the sum was due to them quite irrespective of the source from whence it came?—Yes.

770. *Sir A. Haliburton.* Have you any remarks to make as to the alleged claims on the part of existing out-pensioners to have the capital value of the fund used to increase the rates of out-pensions, especially for aged pensioners?—I referred yesterday to a letter from the Right Honourable Edward Ellice, Secretary for War, to Lord Melbourne, in 1834, in which he dealt with the question of the conversion of Kilmainham Hospital into a barrack. In that letter he was writing about the stoppages made from the pay of the Army on account of poundage and Hospital money, and he showed that those stoppages did not really come out of the pay of the soldier; and then he goes on to say: "If, however, it were fully admitted that Kilmainham Hospital was built and maintained out of money stopped from the pay of the Army, that circumstance would not give men who enlisted since 1771 an unalienable right to the perpetual maintenance of an institution to which, at any rate, no contribution has been made by the present Army." It seems to me that the principle referred to there is equally applicable to the deductions from pensions, which deductions ceased in 1847.

771. Was there anything in the Act of 1847 abolishing pensions bearing upon this point?—Yes; at the end of paragraph 1 of that Act it states: "Provided always that nothing in this or any former Act contained shall be deemed to give any claim whatever to any person on account of poundage deducted from any pension before the passing of this Act, or to the executors, administrators, or other personal representatives of any deceased pensioner for any balance of pension due to him other than what may have accrued during his lifetime, or in the quarter of the year in which he died, and may not have been previously paid."

772. *Mr. Ellis.* Is not that a general waiver of anything and any claim arising out of the words of that Act, and not in any way in the interference with any rights whatever existing before that Act?—I do not know what interpretation would be put upon the Act in a Court of Law, but it distinctly provides that no person shall have any claim upon the poundage deducted before the passing of that Act.

773. *The Chairman.* In consequence of that Act, or on any other grounds?—Those are the only words used, and the object seems to be to bar any claim of any person or persons, individually or collectively. I think that is what is meant, or there is no meaning in it.

774. *Sir A. Haliburton.* Have you examined into the authorities for the disposition of the unclaimed prize money?—Yes, I hand in a memorandum on the subject (*vide* Appendix X.)

775. How was the disposal of that prize money regulated?—By statute.

776. What are the statutes governing the subject, and what is their general effect?—The first statute on the subject of unclaimed prize money was passed in 1805 (45 George III., cap. 72. section 113), which directs that the unclaimed prize money shall be paid to the Treasurer of Chelsea Hospital for the use of the said Hospital, within six months after the distribution commenced, subject to any individual establishing a claim to it within six years. The next statute was passed in 1809 (49 George III., cap 123, section 16), and provides that prize money not claimed within six years shall be forfeited to, and to the use of Chelsea Hospital. The next statute was passed in 1811 (51 George III., cap. 104 section 2), and allows prize money to be applied to the use of Chelsea Hospital before the expiration of six years, provided that the Commissioners of the Hospital retained sufficient funds in hand to meet the claims of persons entitled to prize money. Section 3 of that Act sanctioned the money being invested in Government securities, the interest being applied to the current expenses and general services of the Hospital. The next Act was in 1832 (2 William IV., cap. 23, section 2), which directed that the Commissioners of Chelsea Hospital might dispose of the unclaimed prize money, as they might think expedient and proper, to the general services and expenses of the said Royal Hospital, or relating thereto. The general effect of those statutes was that by the first the money was paid into Chelsea Hospital within six months; by the next it was forfeited to the Hospital if not claimed within six years; the third allowed the money to be applied to the use of Chelsea Hospital before the expiration of six years under certain conditions; and the fourth gave the Commissioners the right to dispose of the unclaimed prize money for the general services of the Hospital.

777. What has been the interpretation of the term "current services" of Chelsea Hospital?—From the fact that the fund was appropriated shortly after the passing of the first Act to reduce the vote for out-pensioners, it apparently was interpreted to mean that that was one of the current services.

778. And the payment of out-pensioners was one of the "current services" of Chelsea Hospital, was it not?—Yes, up to 1842.

779. Was that interpretation accepted as correct?—In the Army Estimates of 1809-10 and 1810-11

the net charges for Chelsea out-pensioners are given as 401,724*l.* 11*s.* 6*d.* and 415,351*l.* 0*s.* 9*d.* respectively, and from these amounts there are deducted as appropriations in aid sums of 100,000*l.* and 25,000*l.*, the same being portions of the unclaimed prize money placed at the disposal of the Commissioners of Chelsea Hospital by certain Acts of Parliament.

780. Was there any objection made to that?—Yes. Some technical objection seems to have been taken to this appropriation, and in 1812 an Act (52 George III., cap. 132, section 3) was passed which refers to these sums as having been appropriated to the current service of Chelsea Hospital, and it formally indemnifies the Commissioners and their Treasurer for having made these appropriations, and enacts that "It shall and may be lawful for the said Commissioners at all times hereafter by Warrant . . . . to appropriate such sums of money forming a part of the forfeited and unclaimed prize money . . . . as they or any three or more of them may think expedient and proper to the current services of the said last-mentioned Royal Hospital." One of the "current services" of Chelsea Hospital consisted of the payment of out-pensioners, and the appropriation of unclaimed prize money for such payments was therefore an appropriation for the "current" purposes of the Hospital, and was distinctly sanctioned by Parliament.

781. Do you trace any appropriation for purposes other than Chelsea Hospital?—Yes, in addition to the appropriation of the money for the general purposes of Chelsea Hospital we find that an Act of Parliament was passed (11 and 12 Victoria, cap. 103) which sanctioned the issue of 30,000*l.* for the purposes of the Royal Military Asylum at Chelsea.

782. That Royal Military Asylum at Chelsea is not in any way under the Commissioners of Chelsea Hospital, is it?—No, but it is for the children of soldiers. A later Act of Parliament (17 and 18 Victoria, cap. 61) sanctioned the issue of another 10,000*l.*, making 40,000*l.* in all, to enable the Commissioners to purchase the site of the Royal Military Asylum.

783. Have you found that any unauthorized appropriations were made?—Between the years 1841-42 and 1852-53 the Paymaster-General surrendered to the Exchequer the unexpended balances of the funds that remained in his hands on the 31st March. That was done under some Treasury order which directed that all public accountants should pay their balances into the Exchequer for use as appropriations in aid. A question afterwards arose as to the irregularity of those transfers.

784. It was not done with the authority of the Chelsea Commissioners which was required by the Act?—That is so; the authority of the Chelsea Commissioners was not obtained in that particular case.

785. Then the appropriation of that money was irregular?—It was, no doubt, irregular, but it only required to be covered by a Royal Warrant for the appropriation.

786. I think the Hospital has still a balance of prize money?—The Hospital has a balance of 79,300*l.*, which is invested in Consols.

787. That money might, under the Act, be transferred by the Commissioners as an appropriation in aid of the Army Estimates for pensioners, might it not?—Decidedly.

788. What is that used for?—For some years the proceeds of the fund have been used for purposes connected with the administration of the Hospital (including allowances to Secretary, Assistant Secretary and Roman Catholic Chaplain), and for the maintenance of the grounds and other Hospital expenses.

789. But, as a matter of fact, under the Act that capital sum might be appropriated now in aid of the Parliamentary votes, or for any other purpose for which an Act might be passed?—Yes.

790. Have you found anything in the Acts or other records to show that unclaimed prize money was ever regarded as the property of the pensioners?—No, decidedly not; it was always regarded as public money to be used for the reduction of the votes of Parliament.

791. How far have your researches gone in that direction?—From the beginning, that is to say, from the Act of 1805, before which date Chelsea had nothing to do with the prize money. (*See* Appendix X.)

792. *The Chairman.* Although it appears here as unclaimed prize-money transferred to Chelsea, yet you suggest it was not all expended for that purpose?—That is so. The balances, amounting in all to 41,144*l.*, to which I referred in answer to a previous question, were, as I have already said, taken by the Treasury as appropriations in aid of the general expenditure of the Army.

793. There was no authority for taking that?—No, nothing except the general authority of the Treasury minute.

794. Is it fair to say that Chelsea really had that amount taken away from them illegally?—I would not like to say "illegally"; but it was irregular, although it was not contrary to the Act. It simply wanted a covering Warrant to put the matter straight. The Act of Parliament says it may be appropriated to any purpose as directed by the Commissioners.

795. *Mr. Causton.* Was the money ever applied for Army purposes?—It was taken by the Treasury in aid of the general expenditure of the country.

796. *The Chairman.* You say it might have been done with the authority of the Commissioners, do you mean the Commissioners of Chelsea?—Yes.

797. Do you suppose that the Commissioners as a matter of course would give authority for the money to be taken away from themselves?—On the order of the Treasury they most decidedly would, they could not help themselves.

798. *Sir A. Haliburton.* As a matter of fact had they not for years taken it as an appropriation in aid of the vote for out-pensioners?—Yes, they had done it for years.

799. *The Chairman.* Could the Commissioners have refused to make the transfer?—Yes, and then they would have been removed and somebody else put in their place.

800. Then you mean that technically they could have refused, but really they could not have done so?—No, because Parliament was providing all the money required for the purposes of Chelsea Hospital.

801. It is a contention that if the matter had been properly looked after and carried on legally, this money would have been still with Chelsea?—The 79,000*l.* is left there.

802. It has not been taken away yet?—No.

803. I understand you wish to show that there is no ground for the contention that this money ought to have been allotted to the service of Chelsea if the proper course had been pursued, and that, therefore, really Chelsea is entitled to have some compensation for its being taken away?—Obviously, if the Secretary of State for War and Parliament have to provide a sum for keeping up Chelsea, and if the 79,000*l.* were taken away from Chelsea, the interest of which is now appropriated to pay for certain services, Parliament would have to provide the amount necessary to pay for those services.

804. I understand that the particular amounts shown here between 1842 and 1847 were paid by Chelsea into the Exchequer without the authority of the Commissioners?—Yes, they were paid into the Exchequer instead of being taken in aid of the Army votes.

805. With regard to those sums, do you consider that there is any claim on the part of either Chelsea or the out-pensioners to have some compensation?—Certainly not, for the simple reason that Parliament provided money for any payments which would have been met out of those sums if they had been retained by the Chelsea Commissioners.

806. Therefore, if that money had not been taken they would have got so much less on the Army Estimates?—Yes.

807. Sir Patrick Grant, in his evidence given before the Committee of 1882, said, "Confining myself to the unclaimed shares of prize money, given by law to the Hospital, not a penny of which came from Parliamentary funds, a sum was accumulated which would now, if intact, give a dividend sufficient for the whole of the expenses; but in former years successive Governments abstracted it in aid of weak budgets." What do you say with regard to that statement?—If you refer to the Acts, I think you will see that the intention of Parliament was that the money should be used for the current purposes of Chelsea, and not be allowed to accumulate for purposes of interest, but Sir Patrick Grant's argument appears to be that if Parliament had left the money to accumulate for the interest, that fund would have been sufficient to pay the in-pensioners. Parliament did not do that; the Act said that it should be used for the general current purposes which, among other things, meant the payment of pensioners.

808. Your contention is that the money ought to have gone towards the annual expenses of Chelsea, and if it had done so the amount voted by Parliament would have been less by that amount?—Yes.

809. *Mr. Causton.* You are not suggesting, are you, that Chelsea has in any way suffered any loss from the appropriation of this sum by the Treasury?—No.

810. *Sir A. Haliburton.* That transaction with regard to the 41,144*l.* 0*s.* 8*d.* could even now be set right at any time, could it not, by a covering Warrant from the Commissioners?—Yes.

811. *The Chairman.* Following on the extract I have already read to you, Sir Patrick Grant went on to say, "However, this point is of little importance for the fund, if still in existence would now disappear by the same measure which appropriates the lands and buildings, and Parliament, as already observed, has never grudged the money required for annual support." That further explanation of Sir Patrick Grant is met by the same evidence as you have given, that the money would have been voted by Parliament if they had not taken it?—Yes.

(*The witness withdrew.*)

James Bachelor (late serjeant, 73rd Regiment), *examined.*

812. *The Chairman.* How long service had you in the Army?—23 years and 208 days.

813. What is your age?—81.

814. Are you married or single?—I am a widower.

815. When did you get into Chelsea?—In October, 1893.

816. Had you not been in before that?—Yes, in 1887,

817. How long were you in the first time?—3 years, and then I went out.

818. Of your own accord?—Yes.

819. How long were you out?—For 15 or 16 months.

820. Why did you go out?—I went out to assist my sister, she was in very bad circumstances, and I thought I could assist her.

821. What was your pension?—1*s.* 11*d.* a-day.

822. What made you return?—I could not help myself, my sister was taken very sick and she gave up, and so I had to return because I did not know where to go. I was very glad to get back again.

823. Are you more comfortable in the Hospital than you were outside?—Yes, a great deal. I am better off now than I have ever been since I lost my wife.

824. When did you come back the second time?—Last March twelve months.

825. As I understand you would not wish that you and others should be deprived of the benefits of the Hospital?—No, I should think not.

826. Even with an increased pension?—If there was a trifle added to the pension I should not mind going out.

827. How much more?—If I had 6*d.* a-day more, that is, 2*s.* 5*d.* a-day, I could manage to keep myself.

828. You would prefer to leave the Hospital if you got 2*s.* 5*d.* a-day?—I should try.

829. But if you had the option of going out with 2*s.* 5*d.* a-day, would you go?—I would sooner go and live among the people where I was bred and born.

830. Do you think that 2*s.* 5*d.* a-day would enable you to live as comfortably outside the Hospital as in it?—No, I could not do that.

831. *Mr. Fitzgerald.* But you would like it better?—Yes.

832. *The Chairman.* Do you get an allowance in the Hospital?—Yes, 8*d.* a-day as a serjeant.

833. Have you formed any opinion as to whether the proposal that has been made, namely, that the Hospital should be done away with and shut up, and that the money should be given to the older pensioners who live outside, would be a good thing for the in-pensioners?—It would be a great improvement, I think, if you augmented the pensions, and gave them enough to live upon, but they would never be as well off as they now are.

834. I conclude from what you have said that you consider you could not live upon much less than 2*s.* 6*d.* a-day?—I think not, I think we could get on with that much, and not be a bother or burden to anyone.

835. With regard to those who are infirm and disabled and crippled, could they live outside on 2*s.* 6*d.* a-day?—No, I think not, it would be hard to get anyone to look after them and lodge them for that.

836. Many of them would have to go to the workhouse, I suppose?—Yes, I expect that would be it.

(*The witness withdrew.*)

Henry Thomas Stredwick (late colour-serjeant, Royal Engineers), *examined.*

837. *The Chairman.* How long were you in the Service?—21 years and 6 months.

838. Are you married or single?—Single.

839. How old are you?—69, as near as possible.

840. What was your pension?—2*s.* a-day.

841. How long have you been in the Hospital?—About 9 years.

842. What is your rank in the Hospital?—I am a serjeant of in-pensioners.

843. Were you wounded in the Service?—No.

844. Are you infirm or disabled; what was the reason of your going into the Hospital?—No, I was not disabled; I did it to better my condition.

845. Were you sufficiently strong to be able to do anything for your living before you came in?—Yes, I was discharged in 1869, and I had to work till such times as I found that things began to fall off.

846. Were you before you came in able to earn any wages in ordinary employment?—Yes, with my pension.

847. What were you earning outside before you came in?—I had only precarious work; when I had a general job it was at a coal wharf, where I managed to earn about 24*s.* a-week; but then that did not last above 3 years. After that I did casual work, what I could get hold of, and some weeks nothing at all, because when you become what you may call grey they do not look upon you the same as if you were a younger man.

848. Are you comfortable in the Hospital?—Yes.

849. Would you prefer to leave the Hospital if you could get your pension increased?—Yes, if it was increased sufficiently.

850 What do you mean by sufficiently?—My pension is 2*s.* a-day regular, and I think about 2*s.* more would be decent.

851. Would you be satisfied with 4*s.* a-day?—Yes.

852. Would you leave the Hospital for less?—No, it would not be worth while; I ought to have 5*s.* to be anything near the mark, but I could do on a pinch with 4*s.*

853. Did you not leave the Hospital for some time?—Yes, I was sick and I went out for about 10 months.

854. Because you were sick?—I thought I could get better outside.

855. What was your experience when you got outside, did you find that you could live better than in the Hospital?—No, I had nothing to live on except my pension, and I had to make great shifts with it.

856. When did you come back again?—I was away for about 10 months 4 years ago.

857. Have you a number of men under you as serjeant?—I am in charge of a ward.

858. Can you speak at all as to the feeling of the men in your ward in reference to the proposal to do away altogether with the Hospital?—No, I could not give any decided answer to that either way.

859. *Mr. Ellis.* What is your own opinion upon the subject?—I think the majority of the men do not want it broken up, and, speaking for myself, I may say I should not like to see the place broken up, except I had sufficient to keep me outside.

(*The witness withdrew.*)

CHELSEA HOSPITAL.

FRIDAY, 13TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. JOHN E. ELLIS, M.P.
Mr. R. K. CAUSTON, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

No. 1 Company.

WILLIAM EDWARDS (late private, 97th Regiment), *examined.*

860. *The Chairman.* How long did you serve in the Army?—21 years.

861. When were you discharged?—In 1866.

862. What is your age?—70.

863. What was your rate of pension?—1*s.* 1*d.* a-day.

864. How long have you been in the Hospital?—Eight years.

865. Are you single or married?—I am a widower.

866. Are you prepared to speak of the general feeling in your ward with regard to the proposal that has been made for doing away with the Hospital?—I can speak for no one but myself.

867. Are you comfortable in the Hospital?—Yes.

868. Do you wish to leave?—No, not unless I had something handsome to live upon; I am a cripple.

869. A great number of those in the Hospital who are infirm could not find a comfortable home, and look after themselves as well unless they had enough to live upon, could they?—That is reasonable enough; of course, if a man is infirm, he has to pay somebody to look after him.

870. What do you consider would be enough to keep you comfortably if the Hospital were shut up?—I could not live under 2*s.* 6*d.* a-day, not in any sort of comfort.

871. *Mr. Ellis.* Then nothing less than 2*s.* 6*d.* a-day would induce you to sacrifice the comforts of the Hospital?—No, because I am a cripple; I was wounded twice in the storming of the Redan.

(*The witness withdrew.*)

ARCHIBALD COWAN (late private, 2nd Life Guards), *examined.*

872. *The Chairman.* How long service had you?—Close upon 30 years.

873. What was your rate of pension?—1*s.* 3*d.* a-day.

874. What is your age?—I am in my 74th year.

875. Are you married or single?—Single.

876. How long have you been in the Hospital?—Going on for 22 years.

877. Have you been comfortable in the Hospital?—I feel quite comfortable.

878. Then you do not want to see the Hospital given up, and those now in it turned out into the world?—No.

879. If your pension were increased would you prefer to be outside?—I would rather be inside.

880. Do you think that is the view of a good many other pensioners you know?—I think it is.

881. I suppose that those who support that view the most strongly are the most infirm, who could not get a comfortable living outside the Hospital?—That is so, they could not.

882. Have you stayed in the Hospital all the time since you first came in?—Yes.

(*The witness withdrew.*)

No. 2 Company.

JOHN SAYERS (late private, 1st Bn. 5th Fusiliers), *examined.*

883. *The Chairman.* What was your rate of pension?—11*d.* a-day.

884. What is your age?—59.

885. Are you married or single?—I am a widower.

886. How long have you been in the Hospital?—I am in my seventh year.

887. Did you have any work to do when you first came in?—Yes, I was Hospital orderly for five years, and then I met with an accident.

888. You are now disabled, but you were not disabled when you first came in?—That is so.

889. Are you comfortable in the Hospital?—Yes, I do not wish to leave it.

890. Even if your pension outside were increased, would you prefer to remain in the Hospital?—May I ask what the increase would be? I would sooner stay in the Hospital; I am very comfortable there, and I could not get anyone to look after me outside unless I paid them for doing it.

891. Are you able to speak with regard to the feeling of the other men in your ward?—I have had a good deal of experience amongst the men on account of being in the infirmary, and from what I know of them I should say there is a great number of them who would rather remain in the Hospital than go out. Many of them are complete cripples, and some of them are regular imbeciles, who, if they went out, would have to have people to look after them, and I do not know anybody outside who would care to do that

892. If they could not get taken in anywhere they would be driven into the workhouse?—Yes, that would be the end of it

893. *Mr. Ellis.* What number of men are there in your ward?—26.

894. Would you say that more than half of those men are cripples?—No, not in that ward.

895. Do you think yours is an average ward?—No, the lower wards have the most cripples in them.

896. *The Chairman.* Which storey is your ward on?—The first flight, the strongest men are generally at the top of the house and the weakest at the bottom; there are over 90 steps to go up to reach the top.

(*The witness withdrew.*)

WILLIAM CHARLES CROSS (late serjeant, 10th Regiment), *examined.*

897. *The Chairman.* How long service had you?—21 years and some odd days.

898. What pension had you?—1*s.* 7*d.* a-day.

899. Are you married or single?—I am a widower.

900. What is your age?—I was 80 last month.

901. How long have you been in the Hospital?—Four years at the end of this month.

902. Did you hear what was said by the other witness?—Yes.

903. Do you agree generally with what he said about the Hospital?—Yes.

904. Are you comfortable?—Yes.

905. And you do not wish to leave?—No, not unless I had a little more pension, if I had that I should like to go and live with my friends and die with them.

906. What rate of pension do you think would make it worth your while to leave?—If it was increased to 3*s.* a-day, including the pension I had, I think that would do.

907. Are your friends living in London or in the country?—They live at Bristol.

908. Were you infirm when you came into the Hospital; had you been disabled at all?—No.

(*The witness withdrew.*)

No. 3 Company.

AMERY COUTTS (late private, 64th Regiment), *examined.*

909. What length of service had you?—17 years and 14 days, and a year's service for Lucknow. I was in 18 engagements in the Mutiny, and four in Persia.

910. Were you invalided?—Yes, from lightness in the head caused by sunstroke.

911. Are you married or single?—Single.

912. What pension had you?—8*d.* a-day.

913. What is your age?—I shall be 72 on the 27th of next January.

914. How long have you been in the Hospital?—Four years on the 2nd of this month.

915. Are you comfortable?—Yes, quite.

916. You do not wish to leave?—No.

917. If your pension were increased outside, would you prefer going out to staying in?—If I could get what would support me, I would not be against going out.

918. What do you think would support you?—I should say 2*s.* a-day including my pension.

919. Are you able to speak at all for any of the other men in your ward as to what their feeling is?—I do not know anything about them; it would take a wiser man than me to know the interior of those men.

(*The witness withdrew.*)

JAMES EDWARDS (late private, 92nd Regiment), *examined.*

920. *The Chairman.* How long service had you?—21 years 333 days.

921. What pension did you get when you left?—1*s.* a-day.

922. Are you married or single?—Single.

923. What is your age?—I shall be 78 next birthday.

924. How long have you been in the Hospital?—13 years.

925. Were you disabled when you came in?—No.

926. You were not able to work, I suppose?—I could not get it.

927. Do you agree with the evidence about the Hospital which has been given by the previous witness?—Yes.

928. Are you comfortable in the Hospital?—Yes.

929. Do you wish to leave?—No, certainly not.

930. If your pension was increased would you prefer to remain inside or would you go out?—I should prefer to remain inside the Hospital, I know I could not get as much as would keep me outside.

(*The witness withdrew.*)

No. 4 Company.

FREDERICK JAMES (late private, Grenadier Guards), *examined.*

931. *The Chairman.* How long service had you?—18 years.

932. Were you invalided?—Yes, I was wounded in the Crimean War.

933. What rate of pension did you get?—10*d.* a-day.

934. Are you married or single?—I am a widower.

935. What is your age?—75.

936. How long have you been in the Hospital?—A little over 9 years.

937. Are you comfortable in the Hospital?—Yes, very comfortable.

938. Would you wish to leave the Hospital?—No, I like it; it is a very good home.

939. Would you prefer to leave it if you got enough to live on outside, or would you prefer to stay in?—I should not know where to go to if I went out.

940. Where is your native place?—Wiltshire.

(*The witness withdrew.*)

WILLIAM DEAN (late private, 10th Regiment), *examined*

941. How long service had you?—12 years and 211 days.

942. Were you invalided?—Yes, for bad sight; I am nearly blind.

943. What was your pension?—1*s.* a-day.

944. Are you married or single?—Single.

945. What is your age?—57 years and 6 months.

946. How long have you been in the Hospital?—14 years and 6 months.

947. Did you come in to work?—No, I was not able to, in consequence of my sight.

948. Are you comfortable in the Hospital?—Yes, and I do not wish to leave.

949. If you were offered a larger amount to go out, would you do so, or would you prefer to remain in?—I would rather remain where I am.

950. Do you know at all what the general feeling of the men in your ward is?—No, I do not interfere with them.

(*The witness withdrew.*)

No. 5 Company.

JOHN TAYLOR (late corporal, 44th Regiment), *examined.*

951. *The Chairman.* How long service had you?—Over 13 years.

952. Were you invalided?—Yes, through rheumatism.

953. What pension did you receive?—8*d.* a-day.

954. Are you married or single?—Single.

955. What is your age?—I shall be 68 in January next.

956. How long have you been in Chelsea Hospital?—20 years.

957. Have you been comfortable in the Hospital?—Yes; I would not wish to be better.

958. You do not wish to leave, I suppose?—No.

(*The witness withdrew.*)

JOHN HYDE (late private, 15th Hussars), *examined.*

959. *The Chairman.* How long service had you?—Turned 14 years'.

960. What rate of pension?—1*s.* a-day.

961. Are you married or single?—Single.

962. What is your age?—I shall be 80 on the 23rd of next March.

963. How long have you been in the Hospital?—About eight or nine years.

964. Have you been comfortable while in the Hospital?—Yes, very.

965. Would you wish to leave if you got your pension increased?—I like the place, and I think it is one of the best in Europe.

966. Then I take it you would not wish to see it done away with?—No, speaking for myself.

967. Are you able to speak for any of the men in your ward; what is their view?—Some are for it and some against it. I would stay as long as I had nothing more, but that is speaking for myself.

(*The witness withdrew.*)

No. 6 Company.

GEORGE GROOM (late private, 2nd Bn. 3rd Regiment), *examined.*

968. *The Chairman.* How long service had you?—25 years and 68 days.

969. Were you invalided?—No, I was discharged in 1869.

970. What was your pension?—1*s.* 3*d.* a-day.

971. Are you married or single?—I am a widower.

972. What is your age?—I shall be 68 this month.

973. How long have you been in the Hospital?—13 years last April.

974. Have you been comfortable in the Hospital?—Yes, very.

975 Then you do not wish to leave?—No.

976. Supposing your pension were increased, and you could get more outside, would you prefer to remain in the Hospital to going out?—I should prefer to remain in the Hospital.

977. Do you know at all what the feeling of the other men in your ward is with regard to that?—The majority of the men in my ward would wish to remain as they are.

978. Were you disabled when you came into the Hospital?—I had scorbutic fever in the Crimea, which caused me to lose all my teeth; I had scurvy in my left leg, but otherwise my health was good when I came in.

979. You are not so infirm as many of the men in the Hospital?—No.

(*The witness withdrew.*)

DANIEL HASTINGS (late private, 2nd Bn. 12th Regiment), *examined.*

980. *The Chairman.* How long did you serve in the Army?—21 years and 62 days.

981. What rate of pension had you?—9*d.* a-day.

982. Are you married or single?—Single.

983. How old are you?—66 last birthday.

984. How long have you been in the Hospital?—10 years.

985. Were you infirm when you came in?—No.

986. Were you able to work?—Yes, at light work.

987. Had you any work to do in the Hospital when you first came in?—Yes, I was taken in as an in-pensioner, but not as a working man.

988. Were you at work outside when you came in?—Yes.

989. What were you earning?—16*s.* a-week, but it was not regular work.

990. What sort of work was it?—Labouring work.

991. *Sir A. Haliburton.* What work did you do when you came into the Hospital?—I was in the cook-house for some time.

992. *The Chairman.* Were you paid for that?—Yes, 1*s.* a-day.

993. *Mr. Fitzgerald.* What work did you do when you left the cook-house?—I was put on as dish man, I had to do work at the mess table and bring the food up into the ward.

994. *The Chairman.* Are you comfortable in the Hospital?—Yes.

995. Do you wish to leave?—I do not wish to leave.

996. Would you prefer to be outside if you got enough to live upon, or would you prefer to remain inside?—I should prefer being out if I got enough.

997. How much do you consider would be enough for you to live upon?—3*s.* a-day.

998. And you would prefer remaining in the Hospital unless you got 3*s.* a-day?—Yes.

(*The witness withdrew.*)

WILLIAM QUANTRILL (late corporal, 96th Regiment), *examined.*

999. *The Chairman.* How long did you serve?—12 years and 4 months.

1000. Were you discharged as an invalid?—Yes.

1001. Were you wounded?—No, I was discharged on account of rheumatic fever.

1002. What pension did you get?—7*d.* a-day.

1003. What is your age?—73.

1004. Are you married or single?—I am a widower.

1005. How long have you been in Chelsea Hospital?—13 years on the 1st of October.

1006. Were you infirm when you came in?—I could not see to work, they told me I had a cataract, my feet were bad from the rheumatics, and my mouth was fixed.

1007. Have they operated on your eyes?—Yes, once, and I am thinking of having it done again.

1008. Are you comfortable in the Hospital?—Very.

1009. Would you prefer to remain in the Hospital or go out?—I should prefer to remain in it; it is our home, and I do not think anyone has the right to take it from us; it may be taken away by might, but I do not think it can be done by right. It is our home, and if you will read these parts of the handbook for visitors, which I have marked [handing in the same to the Committee], you will see that I am right.

1010. Is it your opinion that it would be a great pity to break up the Hospital?—Yes. Those who wish to go out on 2*s.* or 2*s.* 6*d.* a-day are only studying the present time; they do not think of the time when they are laid up and want a nurse. What would be 2*s.* or 2*s.* 6*d.* a-day to them then? As for the out-pensioners, I do not think it would be any good giving them 2*d.* or 3*d.* extra a-day, that will not keep men out of the workhouse; besides, if you did that you would be shutting up a good home for 538 in-pensioners and driving them into the workhouse. A good many of those who are agitating have got good pensions, and do not want any more. This is an institution, I think, every Englishman ought to be proud of; there is not another like it; it was bought and paid for by the soldiers' money, and what the public gave them was only a fraction, 1 per cent.

1011. Do you think it would be fair to take away the benefits of the Hospital from the infirm people in order to give a certain amount of money to pensioners outside, over a certain age?—I think it would be very unfair to take it away from the in-pensioners. It is a good home, but wherever you get a lot of men or a lot of women together, there is sure to be some dissatisfaction.

(*The witness withdrew.*)

Major-General E. A. STUART, *further examined.*

1012. *The Chairman.* We rather want the point about able-bodied men taken into the Hospital cleared up. I understand that you take in a certain number of those men now to do the work?—Yes, 25.

1013. There is a certain amount of work in the Hospital which must be done?—Yes, they do the coal carrying and all that sort of thing; but as the wards are very much scattered, the in-pensioners are utilized in a small way to carry up the food from the kitchen; those are the dishmen, and for that work they get 2*s.* 6*d.* a-week.

1014. Are not the 25 in-pensioners employed?—Yes, but they are brought in for special purposes, and if they cannot do the work, then they go out. That system has been introduced only within the last two or three years; formerly all the work had to be done by the in-pensioners, and that led to us taking in some men who were able to do a little. Originally that was not very well known, so about nine years ago the Commissioners sent a circular round to all the out-pensioners describing the benefits to be derived from the in-pension, and then the applications came in very rapidly. Now the Auditor-General holds us to the strict letter of the Warrant, and no one who is not certified to be incapable of supplementing his pension is to be admitted, and that is why we have a medical certificate with every man.

1015. Then may we take it that in former times, as there was a certain amount of work to be done, you had to admit some in-pensioners, who were fairly able-bodied, in order to do the work which is now done by the 25 special men?—Yes.

1016. And, putting those men out of the question, am I right in saying that you are not permitted under the regulations to take in any able-bodied men who can work?—With every man admitted we have a certificate, from a medical man, that he is incapable of supplementing his pension.

1017. Are you permitted, under the regulations, to admit any able-bodied men?—No.

1018. Under no circumstances?—No.

1019. Do you take the certificate of any doctor in the country, or do you send the men to be specially examined by some medical practitioner named by you?—We do not name a medical practitioner unless the applicant is living in London; if he is, then he is examined by the Medical Officer of the Hospital.

1020. Having received a certificate from a medical man in the country, do you take that as absolutely certifying that the applicant is incapable of working?—Yes.

1021. You do not make any re-examination of the men?—We do not see the men.

1022. Supposing a doctor in the country is dis-

posed to give a little latitude with regard to a man being disabled, you are bound to accept his certificate, are you not?—Yes, we take it as the fair opinion of an experienced medical man.

1023. We had a witness named Stredwick the other day, who gave evidence that some time before he came in he was earning 24*s.* a-week, but just before he came in he had not regular work; he had a fair amount some weeks, and at others nothing at all?—He has been in a long time; he was a serjeant in the Engineers, and I suppose they thought it was necessary to have some men capable of doing a little as colour-serjeants; he had to do a certain amount of work here.

1024. Still, that man could not have been admitted without the certificate of a medical practitioner that he was incapable of working?—That is so. I will send for Stredwick's certificate.

1025. *Mr. Fitzgerald.* If the doctor here found that the condition of a man differed from that stated on his medical certificate, I suppose the matter would be investigated?—Yes, a good proportion of them go into the infirmary now.

1026. *Mr. Ellis.* If you receive here a medical certificate from any medical practitioner in the British Isles that a man is eligible for the Hospital, do you receive that certificate without any enquiry into its genuineness?—It must be genuine, as it is obtained through the Staff Officer of Pensioners at that place.

1027. Then it must come through the official channel at the place?—Yes.

1028. *Mr. Fitzgerald.* The Staff Officer being responsible for the doctor?—Yes.

1029. *Sir A. Haliburton.* If the applicant is in a garrison town, do not you require him to go before the Army Medical Officer?—We have not done so as yet.

1030. *The Chairman.* I understand that, as a rule, there is no selection when men apply, you do not have a certain number of cases before you, and then take those you think the most urgent, but they are taken in the order in which they come, supposing they come within the conditions which allow of their being admitted?—When once they are selected by the Board they come in in their order unless there are some very special circumstances. At yesterday's Board we had a man who was certified as being perfectly blind, so I asked permission to take him in immediately.

1031. I understand, from the evidence, that there is a very much larger number of applicants each year than can be taken into the Hospital?—Yes.

1032. And the vacancies have diminished in the last few years although the number of applications has increased?—Yes.

1033. What is your own individual opinion upon the point, do you think it desirable that there should be some selection made in regard to those cases which are the most urgent, where there is the greatest infirmity, and where there is clearly greater necessity for a pensioner getting the attention which he can get in this Hospital?—It is quite possible that there should be if we were going to increase the Hospital.

1034. But putting aside the question of accommodation, do you think it is desirable that there should be a greater system of selection than there is at present?—Yes.

1035. When you consider who you should take in, do you consider at all the rate of pension a man is getting outside?—No, we consider the length of service and the foreign and active service.

1036. Supposing two men apply at the same time who are equally infirm and disabled, one of whom is getting 2*s.* a-day pension (a rate which at all events would enable him to get something done for him) and the other man is getting only 8*d.*, would you give any preference to one man over the other?—No, it would depend upon character, and active and foreign service.

1037. The man with the 2*s* a-day might be able to get along fairly well, but the man with only 8*d.* would have to go into the workhouse?—But the man with the 2*s.* is the more valuable man to the Government, he must be a serjeant for one thing.

1038. I am rather referring to the question of the Hospital which was built for infirm people, and for men who cannot get along outside?—And for men of the best character.

1039. *Mr. Causton.* If those two men were equally qualified to come into the Hospital, it is a question of only a comparatively short time before they would both be in, it is not long between the first and the last on the list being admitted, is it?—No, about a year. If a man has a pension of only 8*d.*, it is a sign that he has not much claim.

1040. *The Chairman.* Then you do not consider that infirmity alone gives a claim unless there is a character with it?—No, not according to the terms of the Warrant.

1041. *Sir A. Haliburton.* Is it not the fact that being a pensioner gives a claim?—No; he must be of good character, both before and after.

1042. Do you give a preference to a serjeant over a private?—No, not unless he has active service, or foreign service, or better service. They are all taken in who are fit if their characters are good, whether they are serjeants or privates.

1043. *The Chairman.* But taking two men whose claims are equally good, and who are also equally infirm, should you give any preference to the man receiving the smaller pension?—No.

1044. *Mr. Ellis.* Do you consider you have any discretion outside the Warrant?—No.

1045. *Mr. Causton,* Do you submit to the Board the names of all the candidates who offer themselves and who are eligible for admission?—No.

1046. *Mr. Fitzgerald.* Who makes the first selection for the list which is submitted to the Board?—I do.

1047. *Mr. Ellis.* In your capacity as Secretary?—Yes.

1048. *Major-General Duncan.* With reference to the two men, one getting 2*s.* and the other 8*d.*, does not the higher amount indicate that that man has been of more service to the State?—Yes, and it indicates that he has been a non-commissioned officer.

1049. And I gather from you that the 8*d.* man should not be in a position of having a home, which would represent to him something like 3*s.* a-day over the man who gets 2*s.*?—The higher amount indicates that that man has been the better man.

1050. *Sir A. Haliburton.* But cannot a man who is only a private have a character as good as a man who is a serjeant?—Yes, certainly. A man after 21 years' service as a private would have 1*s.* 1*d.* a-day, and if he had a very good character he would have 1*s.* 3*d.* a-day.

1051. But supposing a man had, say, only 15 years' service, he would have a smaller pension and yet his character might be equally good?—Yes.

1052. *Major-General Duncan,* To take those with only 6*d.* or 8*d.* first would be to give them an undue advantage over the men with 2*s.*, would it not?—I think it would give them an undue advantage.

1053. *Mr. Ellis.* With regard to the evidence the men have given us this morning, has there been any selection made of those who should come here?—No; I have used no influence in any way. I asked the colour-serjeants of the companies to send two men from each company to represent the company.

1054. In asking the colour-serjeants to do that, you did not indicate to them any personal opinion, did you?—No, I was careful not to do so. I have now got the medical certificate which was given by the private practitioner in the case of Stredwick, and it runs as follows: "I am of opinion that the above" (that is, Henry T. Stredwick) "is not able to work. He is suffering from a wasting of the muscles of both arms, the cause of which is obscure. (Signed) W. O. Partridge, M.R.C.S., Eng., L.R.C.P., &c., 97, Albany Road, S.E., October 14th, 1884." The In-

Pension Warrant, after stating the purposes for which the establishment is designed, says: "Good character, before and after discharge from Our Army, shall be an indispensable qualification, and preference shall be at all times given to those candidates who have borne the best characters and given longest service." That is what I have been acting on.

1055. *The Chairman.* You say they must, first of all, be certified as being incapable of performing any work?—Unless they are over 55 years of age. It says, "Candidates for admission shall not be less than 55 years of age, and shall have completed full service in Our Army. The loss of one or more limbs, severe bodily wounds, or other injuries or disabilities, the result of Army service, unfitting men for labour in civil life, may render them eligible for in-pension at earlier ages, according to the discretion of Our Commissioners."

1056. That is an absolute bar to anybody being admitted who can work, whether he is 55 or not?—Yes, and that is the reason why we get a medical certificate. Here are copies of the forms used by candidates applying for admission to the in-pension [handing in the same, *vide* Appendices XV. and XVI.]. The first was in use at the time Stredwick was admitted, and the second one is the one we are using now, and in the latter you will see there is a statement to specify the disability a man is suffering from.

1057. *Mr. Ellis.* There is no 55 limit in the certificate?—No, when a man is over 55 we do not require a statement of his disability, but he must be unable to supplement his pension.

1058. *The Chairman.* "Candidates for admission shall not be less than 55 years of age," that does not say that if they are over 55 you may admit those who are able to perform work?—No, before they are 55 the certificate must show that they are disabled, after 55 it need not do that.

1059. Whether they are under 55 or over 55 they cannot be admitted, unless they are unable to perform any manual labour?—No, unless they are unable to supplement their pensions.

1060. In the old form of Stredwick's time which you have put in, I see there is no printed question, or printed qualification, which makes it obligatory for whoever signs the form to state that the applicant is incapable of supplementing his pension by his own labour?—No, but we have altered that in the form we are now using.

(*The witness withdrew.*)

WAR OFFICE.

MONDAY, 16TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. R. K. CAUSTON, M.P.
Mr. JOHN E. ELLIS, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Mr. WILLIAM SEED, *further examined.*

1061. *Sir A. Haliburton.* After your evidence the other day upon the question of poundage on pensions, a question arose upon the words used in the preamble to the Act, where it refers to "the present method" of paying pensioners. Was there any Act prior to 1754 regulating the periods at which pensions should be paid?—No.

1062. How were they paid prior to 1754?—They were paid annually in arrear, as stated in the preamble to the Act of 1754; and it appears from the speech of Mr. William Pitt, when he brought in the Bill which resulted in the passing of the Act in question, that the system of payment annually in arrear was in accordance "with the rules and regulations then established," *i.e.*, prior to 1754. I have been unable to trace any record of the "rules and regulations" referred to by Mr. Pitt. I produce a copy of the speech of Mr. Pitt when he introduced that Bill. Shall I read it?

1063. *The Chairman.* If you please?—This is an extract from the "Parliamentary History of England, Vol. xv., page 347: "Mr. Pitt's Bill for the relief of the Chelsea pensioners. As soon as the Address was agreed to, Mr. William Pitt, Paymaster-General, stood up and very pathetically set forth the hardships to which the out-pensioners of Chelsea College were then exposed by the method of paying their pensions; for after a poor superannuated or disabled soldier was admitted to the pension, by the then method, no part of it was to be paid to him until a year after his admission, by which he was laid under a necessity to borrow money for his present subsistence, on terms often oppressive and usurious, from persons whom they for that reason called their usurers; and being thus at first laid under this fatal necessity, they continued under it as long as they lived, as few (if any) of them could ever in one year save as much out of what they borrowed from their usurer as was sufficient

for supporting them for the following. To remedy this grievance, which lay so heavy upon these poor deserving men, he proposed to have it enacted that all assignments, sales, orders, or securities of money to become due on account of the said pension to be granted by any out-pensioner who should be admitted thereto after December 25th, 1754, should be null and void; and that every such pensioner should on his admission receive in advance such proportion of the pension as should be equal to the remaining number of days of the current half-year then unexpired, after which he should on his appearance, or affidavit that he was living during the whole or part of the half-year preceding, and reciting the place of his abode, continue to receive the said pension in advance by half-yearly payments. And as to pensioners then already admitted, or that should be admitted, on the pension list before 25th December, 1754, he proposed that they should receive their pensions according to the rules and regulations then established until that day, and from thenceforth to receive the same in advance, as before proposed, and that all securities for money to become due on the said advanced half-yearly payments should be declared to be null and void. He further proposed, that in order to defray the expense of receiving and paying these pensions regularly, one shilling in the pound should be deducted out of all moneys applicable thereto to be disposed of as His Majesty by His Sign Manual should direct; and that if any agent or clerk should exact any fee or gratuity on any account whatsoever relative to the said pension, he should forfeit his office, together with the sum of 100*l.*, and be deemed incapable of serving His Majesty in any office or employment whatsoever. And he concluded with moving for leave to bring in a Bill for the relief of the out-pensioners of the Royal Hospital at Chelsea, which was immediately granted. Accordingly the Bill was presented by Mr. Pitt on the 19th, afterwards passed both Houses without the least opposition, and received the Royal Assent 19th December, to the great joy of all the poor out-pensioners, and to the equal disappointment of their old usurers." I have also a copy of the speech of Mr. Fox Maule, Secretary at War, made when he brought in the Bill to abolish poundage in 1847, in which he confirms Mr. Pitt's statement that pensions were payable annually in arrear prior to 1754. Shall I read that also?

1064. *The Chairman.* If you please?—This is an extract from Hansard's Parliamentary Debates, 3rd Series, Vol. 89, page 485, "Chelsea Pensions—Mr. Fox Maule rose to move for leave to bring in a Bill to abolish poundage now deducted from Chelsea pensioners. He observed that it would not be necessary to occupy the attention of the House for more than a short time. What was called poundage, was paid by every man in Chelsea Hospital who was entitled to a reward for long service, wounds, or decrepitude; they had been deprived of it nearly one hundred years ago, and he was disposed to think that it was at that time just and equitable to deduct it. Previous to the year 1754, discharged soldiers had pensions allotted to them on 1st of January, and no part of the money was paid to them until the 31st December following; the pensions were then paid annually and in arrear. The consequence was, that the pensioner constantly found at his elbow money-lenders ready to take advantage of him; but in 1754, Government thought it absolutely necessary, in justice to the pensioner, to check the practice, and a law was then passed, that thenceforward all payments of the kind should be made in advance; it was also made penal for any person to lend himself to the forestalling of a pension. In order to make up to the public the payment of this sum in advance, the pensioner was charged 5 per cent., and he was at that time very glad to submit to the deduction. This course was continued until 1833, and up to this moment 5 per cent. was taken off from nearly all the pensions to men belonging to Chelsea College, except in the cases of men enlisted since 1833. On looking into the matter, he also found that no deduction was made from pensions granted to the Navy; and as it had been the practice to pay Artillerymen through the Ordnance Department, and as the Act of 1754 had been overlooked, they too escaped the payment of poundage. Attention had been directed to the subject of this irregularity and to the general injustice of poundage, last year, by his hon. friend behind him (Captain Layard), and at his instance the subject was deliberately considered during the recess. The result had been that Ministers had determined to ask the House to sanction the abolition of poundage. They had arrived at this conclusion not only on account of the anomalous nature of the charge, but on account of the very inconvenient system it introduced with reference to the public service. The sum deducted might seem small to those who heard him, but it was by no means small to the veterans who were called upon to make the sacrifice. It was but an act of justice to the men that the old soldier should enjoy the whole sum awarded to him by his grateful country, and for these reasons he moved for leave to bring in the Bill."

1065. *Sir A. Haliburton.* Why was it necessary to pass the Act of 1754?—Public accountants would not have been justified, without special authority, in paying away public moneys before the payment was due. The Act apparently served two purposes. It committed Parliament to the provision of the necessary funds to enable the Treasurer of Chelsea Hospital to pay pensioners in advance, and it legalized the payment of pensioners six months in advance.

1066. *The Chairman.* You say that there is no Act of Parliament governing the date at which pensions should be paid previous to 1754, but that they were paid according to "rules and regulations;" by whom would those "rules and regulations" have been issued?—They must have been issued by the Secretary at War.

(*The witness withdrew.*)

Surgeon Major-General Sir W. A. Mackinnon, K.C.B., *examined.*

1067. *The Chairman.* You are the Director-General of the Army Medical Department, I believe?—Yes.

1068. The attention of the Committee has been called to the question whether, if Chelsea Hospital were shut up, or if more accommodation were required, any of the Army hospitals could take in any cases of men who were temporarily disabled?—I do not think they could, there is not room enough. I have here a return showing, with reference to the nine largest hospitals in the Kingdom, the number of beds for ordinary cases, and the maximum number in hospital on any day during the last five years. Only one of those hospitals, Chatham, has any beds to spare, but even there we could not take in more because we must be prepared for any sudden emergencies or epidemics [handing in the return to the Committee, *vide* Appendix XVIII.].

1069. According to this return I see that the

highest number for any day is shown for Devonport, which is more than 100 in excess of the number of beds?—Yes, that is because one of the wings of the hospital has been burned down.

1070. How were those provided for?—In the grounds of the hospital in marquees, and also in the recreation rooms.

1071. In fact, in all the hospitals except Chatham, the maximum number on any one day is considerably in excess of the number of beds?—Yes.

1072. In Netley I see the maximum number is 1,000, but the number of beds is only 843; how would the excess be provided for there?—We could put up 1,000 patients there; at certain times of the year there are a large number of men coming home from India; sometimes we have had as many as 1,100 in Netley. The excess has to be provided for by temporary overcrowding of the most ordinary cases which is very undesirable, by using tents, and by the occupation temporarily of rooms not meant for wards.

1073. Then the first column, "Number of beds for ordinary cases," does not represent the total accommodation of the Hospital?—Yes it does without overcrowding. This could not be permitted permanently, but it is sometimes allowed temporarily in the event of a sudden influx of invalids.

1074. Is there any reason why Chatham is so much less full than the other places?—It is not so much a garrison town as the other places, and it is a pretty healthy place at certain seasons of the year.

1075. From your own knowledge, and from the information given in this return, would you say that we could not possibly rely upon any considerable number of temporarily disabled men being taken into the military hospitals?—That is so. To have pensioners in military hospitals would be inexpedient for many reasons, among them the following: (1.) It would be most inconvenient to have in military hospitals residents of a permanent character; it would be undesirable on sanitary grounds, and in the event of mobilization for home defence the presence of such permanent residents would lessen the accommodation calculated upon in that scheme for wounded. That accommodation is already too limited. (2.) The hospital staff would have to be largely increased, which would mean increase of the accessory buildings, as in no military hospital is there any spare room. (3.) Bedridden patients, besides many of the older and more infirm, who are able to go about, require special attendance, and in no military hospital in the country is there accommodation for the number of nurses and orderlies that would be required, and in very few is there space in which the accommodation could be provided. (4.) It would be subversive of the necessary discipline in military hospitals to have inmates who were at liberty to come and go from and to the outside world at will. There would be smuggling of all sorts, and the hospital discipline would be destroyed. (5.) The establishment of Medical Officers in military hospitals is not large enough to do more than its present work, and on mobilization the Medical Officers of many hospitals would be withdrawn. Either an addition to the number of Medical Officers, or the addition to the staff of the hospital of another (? the pension) department would be necessary for the payment, clothing, and general control of the pensioners. Such addition of another department to the staff of military hospitals is most undesirable. (6.) Subdivision of the pensioners among several hospitals would require a larger establishment than where they are all together as at present. (7.) The expense of maintenance of pensioners, even when sick could hardly be chargeable to the Medical Vote of the active Army, and the greatest confusion, difficulty, and inconvenience would be caused in connection with accounts.

1076. We understand, from evidence we have had, that men coming home invalided and going into the military hospitals have not been able to be kept there until they were cured—sometimes not till they were convalescent; and it has been suggested that if there were some place where they could go afterwards, they would be less likely to become a charge upon the country as infirm men during the greater portion of their after-life. Are you able to say whether it would be possible to keep those men for any longer period in that way?—As a rule, special cases are kept now; sometimes we keep them for 18 months, or even 2 years, at Netley or Woolwich.

1077. But I suppose in some hospitals you are not able to keep them until they are cured or convalescent?—They are always kept till convalescent unless it is considered advisable, as a curative measure, to recommend sick furlough. If not likely to recover in hospital they are invalided.

1078. Do you think more accommodation would enable you to keep these men longer than it is the custom to keep them at present?—All cases considered likely to benefit by treatment are kept in hospital until they are fit for duty; but those not likely to recover are either sent on sick furlough, as a curative measure, or invalided from the Service. It would not be possible to retain such cases in military hospitals, which are not asylums for incurables.

1079. *Sir A. Haliburton.* The question has reference to men coming home for discharge to temporary pensions?—None of those cases are kept, except the special cases, which require longer treatment. Many of those men go home to their friends.

1080. *The Chairman.* From your experience of those cases, are you able to say if it would be desirable to find some place where the men could be kept until they were thoroughly cured?—I think, as a rule, it would be better to let them go to the civil hospitals, where many of the men prefer to go rather than remain with us,

1081. If they can get in without payment, I suppose?—Quite so.

1082. There are not many civil hospitals that take in convalescent cases, are there?—They do occasionally, but it is only seldom.

1083. Those men might find it difficult to get into civil hospitals?—Yes.

1084. Then, under those circumstances, do you think it would be desirable to make (if possible) some provision for those men?—I do not think there is any necessity to make any special provision, because as it is now we can keep a few of those men for a long time. I do not think it would be a good plan to turn military hospitals into what would be, practically, poorhouses.

1085. *Mr. Causton.* With regard to Chelsea Hospital, do you think it desirable to keep up such an institution as that?—Yes, because a lot of old soldiers look forward to going to that place.

1086. *Major-General Duncan.* Are not many of the invalids discharged from Netley before they are sufficiently recovered to earn a livelihood?—Yes, a good many.

1087. *Mr. Causton.* And without any prospect of their being able to do so?—A good many of them have a prospect of doing so; very many of them go to friends.

1088. Those are the men, I suppose, who afterwards apply for entry into Chelsea?—Yes, very often.

1089. *The Chairman.* But if there were some place where those men could be kept until they were thoroughly cured and able, when they went out, to earn a livelihood, that would be an advantage, would it not?—I rather doubt whether it would.

1090. Why?—I think it would be an advantage if provision were made for such cases in some establishment distinct from our ordinary military hospitals. At the same time I am impressed with the necessity of retaining Chelsea for Army pensioners, as it would not be creditable to a great nation that its soldiers who had become worn out in the Service of their country should be left unprovided for in their old age. If Chelsea could be so added to that it could accommodate the chronic cases,

which it is inexpedient to retain in military hospitals, so much the better.

1091. We understand from those who have the management of Chelsea that there is not sufficient accommodation to take in all the cases that come before them; they have no authority to take in the temporary cases, and they have not sufficient accommodation to take in anything like the number of permanent cases?—I see no objection to it if you wish to have a particular place for those cases, but I should object to such an establishment being mixed up with the regular military hospitals, though you might have such an establishment.

1092. *Mr. Fitzgerald.* Are you acquainted with the grounds and buildings at Chelsea?—I have been round them.

1093. From a Medical Officer's, and a hygienic, point of view, do you see any reason against increasing the buildings there?—There is plenty of room for increasing the buildings there.

(*The witness withdrew.*)

General the Right Hon. Sir Redvers H. Buller, V.C., G.C.B., K.C.M.G., *examined.*

1094. *The Chairman.* You are Adjutant-General to the Forces, I believe?—Yes.

1095. The Committee have to consider the point whether the funds and revenues of Chelsea Hospital could be more advantageously used for the benefit of the Army, do you think they could?—I should be very sorry to see the funds of Chelsea Hospital diverted entirely from their present uses. I believe myself that we ought to make a distinction between pensioners. I think that for men who from tropical service, or wounds, or from various diseases become in their old age more or less completely disabled, it is the right thing to have a military hospital where they can end their days tolerably well looked after. For that reason I think it would be a pity to break up Chelsea Hospital with a view to giving an increased pension to men, many of whom already get from the State as much pension as they want.

1096. Would not the hardship be that the most infirm men would suffer if Chelsea Hospital were given up?—Yes, I think so. I think the only possible course that can be adopted is to take a general view of the rates of pension and give them according to the length of the men's services, but at the same time I think when the men get old there are certain cases that ought to be reconsidered by Chelsea with a view to giving some of the men more. Such a plan would really be economical to the State, and it would be a good thing to give a little more in some cases, if only to keep the men out of the workhouses.

1097. Then I gather that you do not think the proposal to give an extra 6*d.* a-day all round to the pensioners, as far as it goes, would be a fair one?—It would be a fair one in one sense, but I do not think it would be a wise one. I was on the Committee of the Fund for the Balaclava Men, and I was very much struck with the uneven status of the men, and judging from that I think if you had even rates you would be giving to some men who do not want any at all.

1098. Have you had it brought to your notice at all that they could do with a larger accommodation at Chelsea than they have at the present time?—I know that at Chelsea they have always more applicants than they can possibly admit.

1099. The evidence given to us is that of late years the number of applicants has increased, while the number of vacancies has really considerably diminished?—Yes, the men are better looked after, and, as in civil life, they live longer.

1100. Are you conversant with Chelsea Hospital and the grounds round it?—Yes.

1101. Should you say, if it was thought desirable to increase the accommodation there, that there would be any objection to disposing of certain parts of the land, and so providing funds for enlarging the buildings?—I think the amenities of the place ought to be considered. I should be very sorry to see such a hospital as that placed in a confined area, and for that reason I think any such proposal as that would have to be carried out with great judgment. I have never looked at the place from the point of view of seeing whether any of the frontages could be sold, but I should say that on the barracks side the frontage would not be of great value.

1102. Are you conversant with the position of Burton's Court, that has frontages on four roads?—But it is immediately in front of the Hospital, and if you did away with that the Hospital would look out on to the road or, nearly so.

1103. The principal frontages are the other way?—But there is as much frontage one side as the other.

1104. You do not express a very confident opinion as to whether it is desirable or not to sell any particular bits of land if further accommodation is required?—No; I was very anxious myself that the grounds of Gordon House should be leased for building; in fact I was the moving spirit in getting it done, for the purpose of somewhat increasing the Hospital revenues. I did that because I thought it would give the in-pensioners rather more comforts than they had before, and comforts which I thought they ought to have.

1105. We understand that the Commissioners of Chelsea Hospital have no power to sell land, and therefore that portion has been let on lease?—We took the best advice that we could get, we had two surveyors down and we took their advice as to the most profitable way of disposing of the land.

1106. Is it not the case that there is no power to sell?—Some of it, I think I have heard, can be sold; I think it is held on several tenures, at least that is what I understood the last time I heard the question discussed.

1107. A scheme has been suggested that, in order to increase the accommodation of Chelsea, it might be worth while to dispose of the whole of the buildings and the land, and take the Hospital somewhere into the country, with the funds acquired by the sale of the property; should you approve of a scheme of that sort?—I could not say without knowing something more about it, but *primâ facie*, I think I should be inclined to reject it. These poor old men get more amusement, and more of the amenities of life in London than they would in the country.

1108. I suppose there is a certain amount of sentiment attached to the place itself, do you lay any stress upon that?—In these days I think we must not attach much importance to sentiment.

1109. But if the accommodation were increased by doing so, would you prefer to move the Hospital into the country?—I have not quite made up my mind as to whether an increased accommodation is desirable, and while I am very strongly in favour of retaining Chelsea, I am not quite positive in my own mind as to whether the actual administration of the Hospital cannot be improved.

1110. That hardly comes before us unless it has a serious bearing upon the financial aspect of the ques-

tion we are considering?—You mean with regard to moving the Hospital out of London.

1111. *Mr. Ellis.* As I understand it, you wish to expressly guard yourself against expressing any opinion that the administration is of the most perfect character?—Yes, that is all.

1112. *The Chairman.* In the course of our enquiry, a point has arisen as to the admission of pensioners, and we are given to understand that if the applicants are qualified under the Warrant, there is no special selection made as to who shall be admitted first; that is, they are taken in their order on the list?—That is one of the points in which I differ from the present administration.

1113. As there is not sufficient room for all the applicants now, do you think it would be desirable that there should be some more selection than there is at the present moment?—I should be rather inclined to think that desirable.

1114. In that case, to whom would you give the preference when you were making a selection?—To the most deserving, judging by their physical state and their past military history.

1115. *Sir A. Haliburton.* Would you not also take into consideration the amount of pension a man might have?—No, I would not; but I think a man who had been badly wounded and got a small pension might get more if necessary. Wounds show up most unaccountably sometimes in after-life.

1116. Supposing there were two men discharged to pension, one a private with a small pension and the other a non-commissioned officer with a large pension, would you give any preference to the man with the small pension as being the more necessitous?—A man's state would undoubtedly be influenced by his pension, and, if he were tolerably comfortable, I think he would not be so good a case as the man actually in the workhouse; and from that point of view I should take the poorer man in.

1117. *The Chairman.* The Committee understand that a great many of the men now admitted are single men, or, at least, men whose wives are not now living?—Yes; and with reference to that I think I should like to see some re-arrangement made in the administration. I think a man who had a tolerably comfortable home might be better off if he got some little increment to his pension, rather than coming into the Hospital. Those are details which I think might be looked into.

1118. Your view would apply with greater force, would it not, to the case of a married man who was refused admittance because he could not provide a livelihood for his wife if he were taken in?—Yes, if the married man were unable to take care of himself.

1119. And you think in deserving cases of that kind that it might be desirable to give some increase of pension in order to enable the men to remain outside?—Yes, I think it might be desirable.

1120. *Mr. Ellis.* May we take it clearly from you that a scheme providing for an uniform addition to the pensions would not be desirable?—I do not think it would. I think it must be left to the Board of Commissioners to decide according to the merits of each case.

1121. We have had some evidence submitted to us to the effect that there is a widespread feeling that it would be desirable, by means of breaking up the Hospital, to adopt some scheme of increasing pensions generally, have you any opinion as to how far such a feeling is "widespread" amongst the pensioners?—I have no knowledge at all that a widespread desire for that exists. I think it has been put into the heads of a certain number of people that they would get 6*d.* extra a-day, and they therefore ask for it, but I doubt whether many would get it even if it were desirable.

1122. Has any evidence reached you as to their being such a wide-spread feeling?—I have no evidence upon the point.

1123. *The Chairman.* I suppose the Board has no power, even in the most deserving cases where they cannot admit a man into the Hospital, of giving any increase of pension?—They have a slight power under the Warrant of increasing the pension when a man's disability has increased with increasing years. They do that irrespective of admission into the Hospital.

1124. *Mr. Causton.* And beyond that they can appeal to the Treasury for an increase, can they not?—Yes.

1125. *The Chairman.* Is that power ever made use of?—Yes, but we have not had that power long, we got it I think about four years ago, and only after a great struggle.

1126. Would you suggest any enlargement of that power or a fuller use of it?—Yes, I am now thinking of men who would not be in-pensioners, but who are married, there would be only a certain number of such cases.

1127. Have they power to deal with those now?—No.

1128. *Sir A. Haliburton.* Is it your opinion that any increase of income derived from judicious leasing of the lands should go solely in the shape of benefits to the in-pensioners?—I think the in-pensioners ought to be made comfortable, and I think when we leased Gordon House we made them practically as well off as they ought to be. I think they now have enough and, therefore, any other increase of income should, I think, go to extend the general purposes of the Hospital.

1129. *The Chairman.* It has been suggested that there is rather a need for some place where those who are temporarily disabled could be taken in and completely cured so as to be able to get their own living; does that suggestion commend itself to you?—There is a need for that, but it is a difficult thing to do at present. I have tried in one or two cases where men were really unfit to leave their military hospital to get them into Chelsea, but that could not be done. I think it would be a desirable thing if we could get a certain number of such cases into Chelsea, or some other hospital, from Netley.

1130. That is one of the reasons which has led to the suggestion that it might be desirable to enlarge the accommodation of Chelsea?—Yes, and that is a point I have myself advocated for some years. At present a man can be kept only a certain time in Netley and then he has to be sent out to the workhouse or anywhere. Instead of bringing them to Chelsea we might, by becoming subscribers to the civil hospitals, get a certain number into those hospitals, the subscriptions being put in in the name of the Chelsea Commissioners.

1131. But convalescent hospitals are one of the things which in England we are most deficient in, and I think there would be a difficulty in getting many men into those hospitals?—Perhaps so; but there are some few to which we could subscribe. I did not mean only convalescent hospitals, I meant also such hospitals as Guy's, St. Bartholomew's, and St. Thomas's.

1132. Would those great London hospitals take in cases which are somewhat of a convalescent character?—Yes, they do now. I have myself got a good many men in with the aid of friends. If we get an increased income, I should like to see it applied in that direction.

1133. Would you prefer it being done in that way rather than build a separate wing at Chelsea?—Yes, I think in that way you could get better attendance for the men at a much less rate than if you made a sort of invalid hospital of Chelsea.

1134. *Mr. Causton.* General Stuart, in his first evidence, suggested that if the present building and the land were sold, a hospital might be put up in the country capable of accommodating 1,500 men, that would be practically 500 more in-pensioners, and 500 temporary men added to the present numbers. Since then General Stuart has reduced his number to 1,100, that is about 600 more than at present, but I gather you would not now propose to admit temporary

pensioners into Chelsea Hospital?—I think they would be better in the civil hospitals, the men have left the Army, they have to make new friends in civil life, and I think the sooner we get rid of them the better. I think you can often improve an existing institution better by altering its arrangements than by removing it altogether.

1135. Then you think that any addition to Chelsea should be for the permanent pensioners only?—Yes.

1036. Do you think there is any need for an addition for the permanent pensioners?—I cannot say.

1137. If you found that the numbers applying were growing, would you think it desirable to increase the accommodation at Chelsea?—I should like to look carefully into that before giving an opinion. I think in some cases men have been admitted before there was any necessity for it, but I do not wish to find any fault with the present administration in saying that.

1138. *Mr. Fitzgerald.* Generally speaking, would the remarks you have made with reference to Chelsea Hospital apply equally to Kilmainham Hospital?—Yes; but I think there is more difficulty in providing for invalid men in Ireland than in England.

(*The witness withdrew.*)

Major-General J. DUNCAN (a Member of the Committee), *examined.*

1139. *The Chairman.* You are the Deputy Adjutant-General to the Forces, I believe?—Yes.

1140. And formerly, I understand, you were one of the Joint Deputy Masters of Kilmainham Hospital?—Yes.

1141. Had you a considerable knowledge of that institution?—Yes, I was one of the Deputy Masters for about five years. For a year of that period I lived in the Hospital itself, and so far as I can judge of the two institutions I should say that Kilmainham is on all fours with Chelsea, only that it is on a much smaller scale, Kilmainham having only 140 inmates. That has been the number admitted since the Warrant of 1854.

1142. Do you think that the evidence we have heard in favour of keeping Chelsea as it is, a home for infirm old soldiers, would apply equally to Kilmainham?—Yes, I think so.

1143. I presume that the fund that would be realized by the shutting up of Kilmainham would come to only a small amount?—I think it would be an infinitesimal sum as compared with the amount likely to be realized by the sale of Chelsea.

1144. Then it would scarcely affect the question from a financial point of view?—No.

1145. *Mr. Causton.* Is Kilmainham always full?—Yes, always, and there are always several names on the list for admission.

1146. *The Chairman.* Do you know whether the statement that we have heard with regard to Chelsea would apply to Kilmainham, namely, that the number of applicants is likely to increase while the number of vacancies is likely to decrease?—I could not say that, but it does not take so long to get into Kilmainham, as I understood from General Stuart, it takes to get into Chelsea. One difficulty, of which I saw a good deal in Ireland, arose from the fact of the pensioners being paid in advance; that repeatedly prevented their coming in, because they could not refund the pension they had received in advance. In my opinion that condition should be abolished.

1147. Were any steps taken to get over that difficulty?—Yes, we had recourse to the Paymaster, and we got him to adopt the expedient of paying the pensioners monthly as soon as they were near the top of the list, but I think some of them could not come in even then.

1148. Have you any suggestion to make with regard to that?—I have always been under the impression that having given the men their pensions in advance we might very well forego the requirement to refund on the men being admitted into Chelsea or Kilmainham, it is only a trifling sum at the most.

1149. If they were paid monthly it would be only a month's pension to refund?—Yes.

1150. *Sir A. Haliburton.* You recommend that it be paid monthly with no requirement as to its being recovered?—I should abolish the refund altogether, and let the pensioner keep the quarter's pension he had received in advance.

1151. But could not that be reduced to a mere point, say at the end of one month, before the next month's payments were made, a man could then come in without any financial difficulty, could he not?—As well as I can recollect I think that even with the monthly system some of the men were unable to get into Kilmainham Hospital, having forestalled their monthly pension, and being in debt to that amount.

1152. *The Chairman.* Have you any reason to suppose that the general view of the pensioners in Kilmainham differs from what we have heard at Chelsea?—Judging from my own knowledge of Kilmainham, I should say the evidence of the men there would be identical with that given by the men at Chelsea.

1153. Would there be a considerable number of men there, as well as at Chelsea, so infirm that if they were turned out they would suffer?—Yes, the infirmary is always full of very infirm men, and some men are in the hospital who would be in the infirmary if there were more accommodation there. There the same arrangement is made at Kilmainham as at Chelsea, of having the more infirm men on the lower floors and the stronger men on the upper ones.

1154. Does the land at Kilmainham surround the Hospital, and is it used for the purposes and amenities of recreation?—Yes; some of the land is leased, and some of it is used for military purposes, but the men have quite as much land for recreation purposes as they require.

1155. Is the custom with regard to the admission of pensioners at Kilmainham exactly the same as at Chelsea?—I should say exactly the same; I was always under the impression that the more infirm ones should have the preference, but as a matter of fact they are admitted on very much the same principle as they are admitted at Chelsea.

1156. Are the admissions governed by a Warrant similar to that for Chelsea?—Yes, the place is reserved for pensioners domiciled in Ireland.

1157. *Sir A. Haliburton.* A man need not necessarily be an Irishman to be admitted?—No, but he must be residing in Ireland when elected for admission.

1158. Does Kilmainham provide all the accommodation that you think is required for pensioners, or ought it be enlarged?—I think very much the same argument might be applied to Kilmainham as has been applied to Chelsea, more men could get in if there were more accommodation. I think the number of applicants is not so great in proportion as for Chelsea, but still they could take in more pensioners if they had more room.

1159. There was more accommodation at one time, was there not?—No, some different arrangements have lately been made with regard to the headquarter offices, but the accommodation for the men in the Hospital has not been touched.

(*The witness concluded his evidence.*)

HOUSE OF COMMONS.

WEDNESDAY, 18TH JULY, 1894.

Present.

Lord BELPER, *Chairman.*

Members.

Sir A. L. HALIBURTON, K.C.B.
Mr. R. K. CAUSTON, M.P.
Mr. JOHN E. ELLIS, M.P.
Mr. R. U. PENROSE FITZGERALD, M.P.
Major-General J. DUNCAN.

Mr. H. J. GIBSON, *Secretary.*

Mr. J. TAYLOR, *examined.*

1160. *The Chairman.* You are the Senior Surveyor in the Office of Works, I believe?—Yes.

1161. And at the request of the Committee you have, I understand, inspected the buildings and lands belonging to Chelsea Hospital?—Yes.

1162. Have you formed any opinion as to their value?—Yes. I have from time to time had occasion to value land in the vicinity of the Hospital, but for this particular purpose, I have again enquired into the value of land in that neighbourhood, and I find that the differences are in some cases very wide ones. I find that some of the land of the Hospital is let as low as 1¾*d.* per superficial foot per annum, while some of the land not far from the Hospital is let as high as 6*d.* per foot. Of course it depends very much upon the position of the land, but taking it generally, I should say that about two-thirds of the land of the Hospital is, subject to all deductions, worth about 16,335*l.* an acre, and the other one-third would be worth about 10,890*l.* an acre, according to its position.

1163. Working on the basis of your valuation, can you state precisely, in detail, what the value of the estate would be?—There are about 46½ acres of the best land, which I estimate would be worth 16,335*l.* gross per acre, that would give a total of 759,577*l.* 10*s.* Then there are about 20 acres (making with the other land the total of 66½ acres) which I value at 10,890*l.* gross, that would give 217,800*l.*, and the two amounts together would give 977,377*l.* 10*s.* as a gross value of the whole of the property.

1164. Is that valuation made at so much per acre, without any deductions?—That is a gross value subject to deductions.

1165. Without deducting anything for making the roads and laying out the land?—Yes, that is what I consider to be a gross value of the whole of the land.

1166. I did not understand that there was more than 67 acres?—It is between 66 and 67 acres.

1167. Then where do you show the deduction for the amount of land to be used for roads, &c.?—That is taken in the price later on.

1168. Therefore the price per acre given by you is arrived at after deducting a certain sum for the making of the roads, and after deducting a certain amount of land for those roads, is it?—The price is taken on the gross area, the deductions for cost of making the roads and sewers and the loss of interest during development having still to be made.

1169. I do not quite follow you; have you deducted anything from the acreage before you set a price on it?—No, nothing; I have made a deduction in the price for one-fourth of the land being required for roads, but I have also to take off a sum in my valuation for making the roads and sewers and loss of interest.

1170. Have you valued any parts of the land separately, or have you taken a general price for the whole of it?—I have taken only two prices, one, the higher one, for what I consider the best of the land, and the other price, the lower one, for the 20 acres which I consider to be inferior.

1171. Where are those 20 acres situated?—Down one side of the estate, opposite the barracks is one part, and the other is made up in various parts where the character of the property is somewhat inferior.

1172. Did you value the 10 acres or so, called Burton's Court, separately?—Yes, I valued Burton's Court as being only equal to the best of the remainder of the estate, and the price which I have given of 16,335*l.* per acre would, in my opinion, be the gross value of the land at Burton's Court

1173. But as far as Burton's Court is concerned you really consider the land to be worth more than that per acre, because there would have to be a certain amount deducted for laying out as roads, would there not?—Yes, there would be a deduction for making the roads from the sum as for the other parts of the site. At present it has some advantage over other portions, because four of the roads are already made, but there are disadvantages connected with that part of the site, and one is that if you mean to sell, that more access to it would be required in order to get the full value of the land. The access at present is extremely bad.

1174. *Mr. Fitzgerald.* Is not the Royal Avenue the property of the Hospital?—Yes, but that does not at present give access to the site for vehicles.

1175. *The Chairman.* Did you take that into consideration when you put the value on the land?—Yes. If Burton's Court had at the present time a good carriage access it would probably be worth more than any of the other land of the Hospital, but it has not, and it is only in conjunction with other land of the Hospital that such access can be obtained, unless other property is purchased for the purpose.

1176. I understand that you put the total value of the land, including the land upon which the Hospital stands, at 977,377*l.* 10*s.*?—Yes, that is the gross value. The net valuation I make as follows:—46½ acres at 16,335*l.* would amount to 759,577*l.* 10*s.*, and 20 acres at 10,890*l.* would amount to 217,800*l.*, these together making a total of 977,377*l.* 10*s.* From this total must be deducted the sum of 174,869*l.* 2*s.* 6*d.* for cost of laying out the estate, and forming roads

and sewers, and for loss of interest during development, making the net value 802,508*l.* 7*s.* 6*d.*, or 12,067*l.* 16*s.* per acre over the whole area.

1177. And that valuation is arrived at after deducting what you consider necessary for the space to be taken up for roads and for access at various points?—Yes.

1178. Do you consider that that amount could be realized, I do not mean at once, but by putting the land in the market within a reasonable time?—I think so, at least that is my opinion.

1179. I suppose, with regard to certain parts of the land, they would be purchased by people as a speculation for letting out on building leases?—Yes. With regard to Burton's Court, I may mention another drawback, and that is that a considerable portion of the land has been excavated, and the sand and gravel carted away, so that anyone intending to purchase, and knowing what had been done, it would decidedly reduce his estimate of its value, because the places from where the sand and gravel have been carted, have been generally filled in with rubbish which would have to be removed.

1180. Have you taken that also into consideration in making your valuation?—Yes; I consider that but for those two adverse circumstances, firstly, the inferior nature of the approaches to the land, and, secondly, the injury that has been done to it by the excavations, Burton's Court would be worth more than I have stated.

1181. At the commencement you stated that the value of the land for letting purposes varied from 1¾*d.* to about four times that amount, on what basis of letting value was your valuation made?—The plot on the east side of Chelsea Bridge Road was let by the Commissioners of Chelsea Hospital at about 1¾*d.* per foot superficial, but the plot which they have let at the south-west corner of the land they have let at 2*d.* per foot. I have had occasion to enquire into the value of certain sites in the neighbourhood where Industrial Dwellings have been built (that is not much further than 100 or 150 yards from the nearest point of the Chelsea ground), and there I found that the land was let at about 6*d.* per foot. With regard to that it is only right I should mention that there were no roads to make, the whole of the land being available for actual building, and there is nothing to be charged against the site in the way of loss of building space. I think if the whole of the Chelsea site were laid out by an able surveyor, the best of the land there should let at something like 4*d.* per foot, that is net, after the roads have been made, for which I allow one-fourth, and it is upon that price that I have principally made my valuation.

1182. *Sir A. Haliburton.* Do you take 4*d.* on the total acreage?—No, the total acreage would give only 3*d.*, with a smaller price for the inferior land.

1183. In estimating the letting value, you appear to work on a different principle; there you put it on the net acreage, and at 4*d.* per foot?—It would come out at about 4*d.* per foot on the net letting area when developed.

1184. *The Chairman.* 4*d.* a-foot, that is double what any of the Hospital land is let for at present?—Yes, the site which is let at 1¾*d.* is rather an inferior site, and it is only a small piece.

1185. Do you consider that the whole of the land you have been valuing is double as good as the best part of the land which has already been let?—No, I should scarcely put it in that way. I should say that in dealing with a large piece of land, such as you have at Chelsea, it is worth more if you deal with it as a whole than if you put it in small pieces.

1186. But is it not the case that if you sell a large block of land you get a lower price than if you sold the same in bits according as the requirements of the public made it possible to sell it?—Not in every case. If the Commissioners of Chelsea Hospital were in funds, and were disposed to deal with this land themselves, and let it out in parcels, making up the roads and going to the expense of developing it, I have no doubt whatever they would get a great deal more for it in that way than if it were thrown into the market, because someone else would have to get a profit out of it.

1187. That is the reason for my question?—But you will find that in some cases an estate like that of Chelsea, if laid out to advantage, would fetch more than if it were sold to persons buying small pieces. One might build a small house, and another a large house, and therefore I think that in the case of such an estate as you have there it would be better to deal with it as a whole.

1188. I am taking it for granted that the land would be dealt with in a proper manner for building purposes, but at the same time it is not necessary to put the whole of it into the market at once, though it is desirable that you should lay it out under a certain definite scheme, in order to inform intending purchasers?—Certainly.

1189. In that case do you still think that by putting the whole of it into the market at once you would get a better price than if you sold it in small pieces?—I am not prepared to say; it would depend upon the demand, and there has been a demand for good sites in the neighbourhood.

1190. *Mr. Fitzgerald.* In the acreage you have given us and the price, have you counted the ground upon which the Hospital buildings actually stand?—Yes, the whole thing; the whole estate.

1191. So that to realize that sum the buildings would have to come down?—Yes, certainly. I have not myself actually measured the ground; I have taken the acreage as it was given to me.

1192. *The Chairman.* Do you consider that the land which has been let by the Chelsea Commissioners has been let below its value?—I am not prepared to say that. There is only one plot on the general site as I know it, which has been let at 2*d.* a-foot, but I think the land should fetch more than that, and I have consequently made my estimate on the assumption that it would fetch more.

1193. Then you think it is worth more than it has been let for?—There are various circumstances to be considered in connection with the land which has been let. It is near the Embankment, and nearly the whole of the land where that is situated has been filled in. It is all made ground, and I do not know what allowances were made for the extra foundations required at that part. I should take that into consideration if I were purchasing or hiring that ground.

1194. However, giving the same allowance of one-fourth for the roads (I do not know whether it is necessary or not, but supposing it is), that would bring up the value to something more than 2*d.* a-foot, would it not?—Yes.

1195. Would it be necessary to make an allowance of one-fourth at that particular spot?—I have not had an opportunity of seeing exactly how the site is utilized, I have only taken it from the plan where I see it is hatched; but how much is actually occupied by buildings, and how much by approaches, I cannot say.

1196. *Mr. Ellis.* You base your estimated value on the rental of 4*d.* per foot per annum, is not that so?—No, not for the whole area; if you take the whole area of the better land, you must take it at 3*d.*

1197. Then how many years' rental do you take to arrive at your capital value?—I have taken 30 years.

1198. *Sir A. Haliburton.* Have you any knowledge of any similar purchases being made in that neighbourhood?—No; the only land that I have known of in the market is the land let at 6*d.* per foot, to which I have already alluded.

1199. You do not know of any acreage having been sold at so much an acre?—No. The piece to which I refer covers about 38,500 feet superficial, and it is let from Michaelmas, 1887, at 1,000*l.* per annum, which is close upon 6¼*d.* a foot.

1200. Your estimate is a much bigger amount than that got for Millbank?—Yes, because it is a much

more valuable site than Millbank. As a matter of fact, no part of Millbank site has been sold at a market value.

1201. *Mr. Fitzgerald.* It has been valued?—Yes, I valued it myself.

1202. Contrasting what you have put Chelsea at with your valuation of Millbank, how do the two compare?—In my opinion, Chelsea is worth nearly double what Millbank would have fetched.

1203. *Sir A. Haliburton.* Why?—Because of the difference in situation.

1204. But is not Millbank nearer the centre of business?—It is not in so good a locality; there is a difference also in the nature of the site; there is a gravel foundation to the original site of Chelsea, but there is no such thing at Millbank.

1205. Does that practically affect the value of a building site in London?—Certainly, in such a place at that.

1206. *The Chairman.* Could you put in a plan showing the parts of the estate which you have valued at the lower price, and the parts you have valued at the higher price?—Yes. Here is the plan which shows the ground. *This* (pointing to the plan) is Burton's Court, and I have taken the whole of the ground from the centre of that site right down to the river as equally valuable; and I have taken *this* (pointing to the plan) other part right down to the river as being in same category. The strips on the sides are not of the same value.

1207. If you have taken *this* right down to the river at a rental value of 4*d.*, what is the difference between *this* part and *that* part which has been let for 2*d.* a foot?—I have taken only the area, I do not know how it would be used; I cannot, of course, say what the value of this ultimately might be until I have the actual scheme for laying out the land before me.

1208. *Mr. Causton.* Where is the land that you refer to as having been let at 6*d.*?—It is not far from the end of the barracks, about 150 yards.

1209. *Sir A. Haliburton.* Is not that rather a low neighbourhood down there?—I could not say, but there are small houses there.

1210. *Mr. Causton.* If an access to the estate could be arranged from *that* road, would that increase the value of the property?—I certainly think that the right thing to do would be to convert Royal Avenue into a rather handsome approach to this land.

1211. If that were done, would it increase the value of the peoperty, in your opinion, beyond what you have estimated?—Yes, I think it would.

1212. *Sir A. Haliburton.* Would it affect the average of the whole?—Yes, I think so, if the whole of the land were dealt with.

1213. *Mr. Ellis.* Whatever the increase of value, that acreage would have to be deducted from the price?—Yes, but it would increase the value of the land round it; at present, you cannot get a good approach to the ground; the King's Road, for instance, is a poor approach to an estate of this kind.

1214. *The Chairman.* Taking all the inconveniences into account, may we take it that your valuation has taken all those matters into consideration?—Yes. If you had the whole of the land to deal with, you might make a good approach.

1215. But you cannot go further back than the estate goes, you cannot enlarge this present approach?—No, but still it would be a good thing if you could get a good approach to the estate from Chelsea Bridge Road.

1216. *Mr. Fitzgerald.* What is the rent of that land *there*?—1¾*d.*

1217. And that land *there*?—2*d.*

1218. Was this discounted in value on account of the old Grosvenor Canal?—The property there is of an altogether inferior character, and the barracks being there would be detrimental to that portion of the site. There is a small class of house there, and that fact also would make the portion next to the Chelsea Bridge Road rather less valuable.

1219. *Sir A. Haliburton.* In your estimate have you allowed anything for the value of the building?—No, I have not gone carefully into the value of the building, it would be such a small amount in a big thing of this kind that I did not think it worth while to do that. I do not know that it would fetch more than, say, 7,500*l.*

1220. *The Chairman.* Would it cover the cost of taking the material away?—Yes, much more; I think there must be some 4,000*l.* or 5,000*l.* worth of lead there.

1221. But it would cost a considerable amount to get the material off the estate, would it not?—The building of course would be of great service to whoever might buy the estate, because the whole of that material would be required on the site for road making, and besides, the best of it might be re-used in some of the new buildings.

1222. *Mr. Fitzgerald.* Do you know what the cost of taking down Millbank was?—No, I never had any means of arriving at what the cost of that was, because the purchasers took the most of it away themselves.

1223. *Mr. Ellis.* Have you any official connection with the War Office?—No, none whatever; I should like to mention that I have had only a few days to consider this matter, and I have, therefore, not been able to go into it as a complete valuation.

1224. *The Chairman.* Do you wish to bring that forward in any way as possibly modifying your opinion?—No; I have come to the conclusion that my figures are approximately correct, so far as my own opinion goes, but if a complete valuation of that estate were made, it would require the land to be plotted, and considered in detail.

1225. *Mr. Ellis.* May we take it from you that the sum could not be more, but might be less, that indeed it is an outside value?—I do not think it would be more than I have stated.

1226. *Mr. Fitzgerald.* And that sum supposes the present Hospital to be razed to the ground, and the land on which it stands to be included in the total acreage?—Yes; I have taken the area as 66½ acres, I have not checked it.

1227. *The Chairman.* Does the acreage you have valued take in the pieces already let?—It takes 66½ acres as the basis, and that, I take it, includes the pieces let.

(*The witness withdrew.*)

Mr. H. J. Gibson, Secretary, *called in.*

1228. *The Chairman.* Can you state the number of Army pensioners now living, and their ages?—Yes, I hand in a statement (*see* Appendix XVII.), which shows that the total number of Army pensioners amounts to 82,403, of whom 37,184 are over 55 years of age, and 18,792 are over 60 years of age.

1229. Is this an accurate return?—Yes, it is quite accurate as regards numbers; as regards the ages of the pensioners, we have obtained exact information in respect of the 74,003 pensioners residing in the United Kingdom. There are, however, 8,000 pensioners living abroad, whose ages we do not know, and time has not admitted of our getting the information. So, to complete the return, we have assumed their ages to be the same as those of the pensioners at home, and have distributed them accordingly.

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Appendix I.

CHELSEA HOSPITAL.

1876–77.

ACCOUNT of the Receipt and Expenditure of the Commissioners of Chelsea Hospital, in respect of Army Prize and Legacy Funds, for the Year ended 31st March, 1877; together with the Report of the Comptroller and Auditor-General thereon.

(*Presented in pursuance of Act* 39 *Vict., c.* 14, *section* 1.)

Ordered, by The House of Commons, *to be Printed,*
19*th March*, 1878.

ACCOUNT of the Receipts and Expenditure of the Commissioners of Chelsea Hospital for Balances of Cash and Securities at the commencement and close of the Year.

	Securities.			Cash.			Securities (Stock).			Cash.		
BALANCES on 1st April, 1876:—	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Army Prize Money .. .. (Consols)	75,000	0	0	2,144	16	9						
Drouly Legacy .. .. .. (Consols)	7,460	18	7	499	5	11						
Stuart Legacy .. .. .. (Consols)	3,565	16	4	106	1	8						
Ranelagh and De La Fontaine Legacies .. .. .. (Consols)	1,552	2	8	536	11	8						
Ditto (Reduced)	4,581	15	8	..								
Ditto Surplus Account (Consols)	1,500	0	0	487	16	9						
Smith's Legacy	..			..								
							93,660	13	3	3,774	12	9
RECEIPTS.												
ARMY PRIZE MONEY:—												
Amount transferred to the Commissioners for distribution ..				..								
Dividends on Securities				1,125	0	0						
Grazing rents and produce of plants sold (carried to this Account in aid of expense of maintenance of ground) ..				37	7	9						
							..			1,162	7	9
LEGACY FUNDS:—												
Drouly Legacy—Dividends on Securities				223	16	6						
Rent of Land				398	12	2						
							..			622	8	8
Stuart Legacy—Dividends on Securities							..			108	18	10
Ranelagh and De La Fontaine Legacies—Dividends on Securities							..			182	9	8
Ditto Surplus Account ditto							..			44	8	10
Smith's Legacy—Proceeds of Bequest..							..			341	11	5
Consols purchased for account of Stuart Legacy							111	13	4	..		
							93,772	6	7	6,236	17	11

We hereby certify that the whole of the Expenditure included

Board Room, Chelsea Hospital,
10th July, 1877.

I certify that this Account has been examined

Exchequer and Audit Department,
13th February, 1878.

Examined,
A. J. B. GOODWYN.

Services other than those voted by Parliament, in the Year ended 31st March, 1877; showing the (Prepared in pursuance of the Chelsea Hospital Act, 1876, 39 Vict. c. 14.)

	£ s. d.	Securities (Stocks). £ s. d.	Cash. £ s. d.
EXPENDITURE.			
ARMY PRIZE MONEY:—			
Prize Shares paid to soldiers and their representatives..	370 8 3		
Expenses of Prize Department (including Allowances to Secretary and Clerk)	200 0 0		
Maintenance of grounds and other Hospital expenses ..	1,820 4 11		
		..	2,390 13 2
LEGACY FUNDS:—			
Drouly Legacy..		..	807 7 6
Stuart Legacy..		..	106 1 8
Ranelagh and De La Fontaine Legacies		..	124 9 5
Ditto Surplus Account		..	80 0 0

	Securities. £ s. d.	Cash. £ s. d.		
BALANCES on 31st March, 1877, viz.:—				
Army Prize Money .. .. (Consols)	75,000 0 0	916 11 4		
Drouly Legacy .. .. (Consols)	7,460 18 7	314 8 4		
Stuart Legacy .. .. (Consols)	3,677 9 8	108 18 10		
Ranelagh and De La Fontaine Legacies .. (Consols)	1,552 2 8	594 11 11		
Ranelagh and De La Fontaine Legacies .. (Reduced)	4,581 15 8	..		
Ditto Surplus Account (Consols)	1,500 0 0	452 5 7		
Smith Legacy	..	341 11 5		
			93,772 6 7	2,728 7 5
			93,772 6 7	6,236 17 11

GEORGE HUTT, Secretary to the Commissioners,
Accounting Officer.

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in this Account has been incurred with our approval.

STEPHEN CAVE,
PAT. GRANT, Governor,
R. H. GALL, Colonel,
Major and Lieutenant-Governor.
} Commissioners of Chelsea Hospital.

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under my directions, and is correct.

WM. DUNBAR,
Comptroller-General of Her Majesty's Exchequer,
and Auditor-General of Public Accounts.

REPORT of the Comptroller and Auditor-General on the Account of Chelsea Hospital, in respect of Army Prize and Legacy Funds, for the year ended 31st March, 1877, in pursuance of the provisions of the Act 39 Vict. c. 14, section 1.

First Account.

1. This Account is rendered to the Exchequer and Audit Department under the 14th chapter of the Act 39th Vict. (Chelsea Hospital Act, 1876).

Circumstances under which now rendered.

2. The circumstances which led to the submission of this Account to my Department for audit may be briefly stated.

Upon the occasion of a Bill being brought into the House of Lords in the Session of 1875, for the purpose of conveying certain Crown lands to the Commissioners of Chelsea Hospital, an objection was taken, on the grounds that additional powers were proposed to be given to the Board, and that no provision had been made for the audit of the Hospital Accounts.

Communications were thereupon made by the Lords of the Treasury to the Commissioners of Chelsea Hospital and to myself, upon the subject of the audit of these Accounts, the result being the passing of the Chelsea Hospital Act (1876), which extends the provisions of the Exchequer and Audit Departments Act to the Accounts of Chelsea Hospital for services other than those voted by Parliament, and empowers me to audit and report upon the same.

Nature of the Account.

3. This being the first Account which has been rendered in pursuance of the Act referred to, it appears to be desirable that I should state briefly the origin and nature of the funds administered by the Commissioners, and the objects upon which these funds are expended.

The funds are as follows:—

Army Prize Money.
Drouly Legacy.
Stuart Legacy.
Ranelagh and De la Fontaine Legacies.
Ranelagh and De la Fontaine Surplus Account.
Smith Legacy.

ARMY PRIZE FUND.

4. The first receipt by the Commissioners of Chelsea Hospital on account of unclaimed prize-money was in the year 1792, and consisted of a sum of 2,000*l.*, part of unclaimed Gibraltar prize-money.

In the year 1809 power was given to the Commissioners by the Act 49 Geo. III., c. 123, to compel the prize agents to render accounts, and to pay over the balances remaining in their hands to the Treasurer of the Hospital.

The passing of this Act of Parliament resulted in the eventual recovery of very large sums of money which had for many years remained unclaimed in the possession of the Army Prize Agents.

Statutory power was given in this and several subsequent Acts of Parliament, by which the Commissioners were enabled to appropriate, at various times, a considerable portion of the unclaimed prize-money so recovered to the general purposes of the Hospital. It will be seen, from the last Account of Army Prize Money presented to Parliament, that the total amount expended on the service of the Hospital, since the year 1809, amounted to upwards of half a million.

A later Act of Parliament, 2 & 3 Will. IV., c. 53, known as the "Army Prize Act," in addition to other provisions, governing the administration of the fund, charged the Commissioners with the duty of distributing the money to the claimants directly, instead of paying through prize agents, as had hitherto been the practice.

The fund at the present time consists of a capital sum of 75,000*l.*, invested in Consols, which amount is considered to be sufficient to meet all the demands which may be made upon it. In the meantime the dividends received are devoted to the payment of such claims as arise from time to time, and also to the maintenance of the Hospital and grounds.

The payments during the past year made to soldiers and others in respect of claims on the fund amounted to 370*l.* 8*s.* 3*d.* only. The expenditure for the maintenance of the grounds, &c., during the same period was 1,820*l.* 4*s.* 11*d.*

Allowances from this fund are annually paid to the following officers, viz.:—

1. To the Secretary to the Hospital, 100*l.*;

2. To the Principal Clerk, 100*l.*;

for duties in connection with prize claims; and,

3. To a Junior Clerk for keeping the garden accounts, 15*l.*,

the annual salaries paid from Vote 22 of the Army Grants to these Officers being as follows:—

The Secretary, 700*l.*
The Principal Clerk, 550*l.*
The Junior Clerk, 180*l.*

The Drouly Legacy.

5. A sum of 1,000*l.*, and the moiety of the residue of his property, was in the year 1818 left by Colonel Drouly, Governor of the Cowes Castle, in the Isle of Wight, "to be applied for the use and benefit of the pensioners of the Hospital, in such manner as the governors and directors for the time being shall from time to time direct."

When fully realized, this legacy amounted to 25,069*l.* 13*s.* 4*d.*, Three per Cent. Consols.

Under the authority of Parliament, upwards of 20,000*l.* has at various times been expended from this fund in the purchase of lands immediately contiguous to the Hospital buildings.

The amount now standing to the credit of this fund and invested in Consols is 7,460*l.* 18*s.* 7*d.*

In addition to the income arising from the dividends on this stock, which amount annually to 223*l.* 16*s.* 6*d.*, there are receipts on account of rent of land, arising as follows:—

A plot of land, purchased by the Commissioners out of this fund, was leased to the War Department at a rent of 400*l.* per annum. The War Department, however, soon surrendered their lease, guaranteeing payment of the rental until an equal amount should be obtained from new tenants.

I have been informed that under present arrangements the land has been leased to the Industrial Dwellings Company for a term of 80 years; for the first year at a peppercorn rent, for the second year at a rent of 200*l.*, and for the third and subsequent years at an annual rent of 400*l.*

The lease referred to having been granted from the 25th December, 1875, the subsidy received from the War Department in the year 1876–77 has been 300*l.*

The expenditure from the Drouly Fund is chiefly for the payment of small allowances to pensioners employed in and about the Hospital; of annual gratuities on the 19th November, varying in amount from 10*s.* to 2*s.*, and for the purchase of certain extra comforts in addition to the ordinary supply of provisions paid for from Vote 22 of the Army Grants.

Expenditure was also incurred from this fund for the erection of an iron fence surrounding the Chillianwallah Monument, which is a conspicuous feature in the Hospital grounds.

As it did not appear to me to be quite clear that such expenditure was in conformity with the terms of Colonel Drouly's will, viz., "for the use and benefit of the pensioners of the Hospital," I addressed an enquiry on the subject to the Commissioners, and was informed in reply, that the Board "considered that the general health and comfort of the pensioners are materially concerned in the careful preservation of the grounds and open spaces around the Hospital, and as these fences partake rather of the character of permanent structure than of annual maintenance, the charge was more legitimately made on this fund."

The Stuart Legacy.

6. In the year 1851, a sum of money was received by the Commissioners of Chelsea Hospital, being the residue of the estate of Mr. John Stuart, of Prescot, in the county of Lancaster, which amounted, after the payment of legacy duty, to 1,680*l.* 18. 10*d.*

The legacy is now represented by a sum of 3,677*l.* 9*s.* 8*d.* Consols.

Up to the present time, however, no expenditure has been made from the fund, the dividends upon the capital sum having been from time to time laid out in the purchase of additional stock. In reply to an enquiry as to the circumstances under which this legacy was permitted to accumulate since its receipt by the Commissioners in the year 1851, and how it was intended eventually to deal with it, the Commissioners have informed me that they propose to expend the accumulated fund in making considerable additions to, and improvements in, the buildings of the Hospital.

The Ranelagh and De la Fontaine Legacies.

The Ranelagh Legacy.

7. Upon the death of Richard, Earl Ranelagh, in the year 1711–12, an annuity of 200*l.* became payable to the Commissioners for the purpose of supplying the in-pensioners with "Surtout Coats," once in every three years, and also for the purpose of paying small annual gratuities to the in-pensioners on the 29th May, the birthday of the founder of the Hospital, King Charles II.

The supply of "Surtout Coats" ceased in 1809; the annual gratuity on the 29th May is still continued.

The De la Fontaine Legacy.

8. A sum of 2,000*l.* was bequeathed by Mr. John De la Fontaine for the benefit of lame and disabled land soldiers, which sum, together with interest amounting to 716*l.* 13. 4*d.*, was paid to the Commissioners in the year 1718.

The amount of this legacy was invested in Bank Annuities, in which it remained until the year 1725, when it was joined with the Ranelagh Legacy.

In the year 1720, the annuity of 200*l.*, left to the Hospital by the Earl of Ranelagh, was laid out in the purchase of South Sea Stock. A considerable loss was the result of this investment. In the year 1725 it was decided, by a decree of the Court of Chancery, that the deficiency in South Sea Stock was to be made good out of the legacy subsequently left to the Commissioners by Mr. De la Fontaine. The two legacies were in consequeuce joined in the year 1732–33, and formed into one fund, which has since been held in trust by the Court of Chancery, and is known as the "Ranelagh and De la Fontaine Legacies."

The amount of this fund which had been invested in South Sea Stock, was, in the years 1854 and 1858, transferred to Three per Cent. Consols and Three per Cent. Reduced Annuities, the dividends upon which, amounting to about 180*l.*, are expended upon the small pecuniary bounty before referred to, and in providing extra articles of clothing for the in-pensioners of the Hospital.

The Ranelagh and De la Fontaine Surplus Account.

9. Under this head appears in the Account a capital sum of 1,500*l.*, invested in Consols. There is also to the credit of this Account a cash balance of 44*l.* 8*s.* 10*d.* No expenditure has been made from it since its formation. In answer to an enquiry from this Department as to the nature of this fund, and the purposes for which it was considered to be available, I was informed that it consisted of unexpended sums derived from dividends upon the stock of the original Ranelagh and De la Fontaine Legacies, to which it was not considered convenient or practicable to add, by the investment of these unexpended sums, on account of the stocks in question being held by the Court of Chancery to the credit of certain causes. In consequence of this presumed difficulty, an Account was opened in the books of the Paymaster-General some few years since, and the unexpended balances on these Legacies have been carried to the Account of the Surplus Fund. The Commissioners state that they recognize no difference between the original stock and the stock of the Surplus Fund, as regards the objects for which the money is available.

The Smith Legacy.

10. This legacy is represented by a sum of money in the hands of the Commissioners, amounting to 341*l.* 11*s.* 5*d.*, which has been received during the period of the present Account, and is the moiety of a legacy left by Mr. Palliser Smith, of Southampton, for the benefit of Chelsea and Greenwich Hospitals.

It was stated in reply to an enquiry from this Department, that, as no specific purposes were named in the Will as to its eventual disposal, the Commissioners presumed that the bequest might be expended at their discretion upon any service for the benefit of the Hospital.

Character of the expenditure.

11. As regards the character of the expenditure from the Army Prize Fund, it appears to me that it has been applied in conformity with the intentions of Parliament, as expressed in the several Acts relating thereto; nevertheless, I think it right that I should direct attention to the fact that there are at the present time various sources from which the expenditure for the services of the Hospital are defrayed; viz., the funds which form the subject of this Report, and the money voted by Parliament.

Army Votes.

12. In the Army Grants for the present year, a Vote (No. 22, Sub-head A, "Chelsea Hospital") is taken for 28,916*l.* for the payment of the Governor and the other Officers connected with the military administration of the Hospital; the daily pay of the in-pensioners varying from 1*s.* to 1*d.*; and for provisions and clothing supplied under contract.

The works and repairs in connection with the building, and the supply of fuel and light and furniture, are undertaken by the Commissioners of Works, and provided for in the usual manner in Civil Estimates.

13. The total amount expended upon the Hospital, &c., during the year 1876-77, may be stated as follows :— Total amount expended.

	£	s.	d.	£	s.	d.
1. From the In-Pension Vote, No. 22 of the Army Grants				29,542	0	2
2. From Class I., Vote 3, Civil Service :—	£	s.	d.			
Works and Repairs of the Building ..	1,175	15	5			
Tithes	17	8	10			
Fuel and Light	2,483	0	10			
Supply of Water	321	15	6			
Sundries	10	19	3			
				4,008	19	10
3. From Class I., Vote 4 :—						
Furniture	..	..		978	0	5
Total from Votes of Parliament ..	..	..				34,529	0	5
4. From Army Prize Fund :—						
Expenses of Prize Department ..	200	0	0			
Maintenance of Hospital and grounds	1,820	4	11			
				2,020	4	11
5. From Legacy Funds				1,011	15	8
Total from Army Prize and Legacy Funds						3,032	0	7
						37,561	1	0

14. Without expressing a definite opinion on the question how far it is expedient that the present arrangements for defraying the necessary expenses of the Hospital should continue, it appears to me to be necessary that I should point out that, in the management of an Institution deriving its revenue from separate and distinct sources, difficulties must occasionally arise in deciding upon the head of revenue to which certain expenditure should be charged. It is inevitable that considerable latitude must, under present circumstances, exist as to the extent to which the Vote can be subsidised from the Legacy Funds, or, on the other hand, the Legacy Funds be relieved at the expense of the Vote. Difficulties in classification of charges.

15. Whether this difficulty can be met without resorting to the course of providing for the whole expenditure of the Hospital in the Votes of Parliament, and paying over to the Exchequer the surplus revenue derived from the interest on the Prize Fund after the payment of the claims made upon it during the year, is a matter deserving of careful consideration. Proposal to remedy the same.

16. With regard, however, to the Legacy Funds, I infer that the Commissioners feel themselves, to a certain extent, at a loss to decide with reference to their application; and perhaps it may be worthy of consideration whether, in the absence of distinct Legislative provision, it would not be of advantage to the Hospital that the Commissioners should avail themselves of the 16th Section of the 137th Chapter of the 16 and 17 Vict., which empowers the Charity Commissioners to entertain applications for their opinion and advice upon matters connected with the management and administration of funds similar to those at the disposal of the Commissioners of Chelsea Hospital. Management of the Legacy Funds.

WM. DUNBAR,
Comptroller-General of the Receipt and Issue
of Her Majesty's Exchequer, and
Auditor-General of Public Accounts.

Exchequer and Audit Department,
13th February, 1878.

Appendix II.

CHELSEA HOSPITAL.

ACCOUNT,

1892-93.

ACCOUNT of the Receipts and Expenditure of the Commissioners of Chelsea Hospital, in respect of Army Prize and Legacy Funds, for the Year ended 31st March. 1893; together with the Report of the Comptroller and Auditor-General thereon.

(*Presented pursuant to Act* 39 *Vict., c.* 14, *section* 1.)

Ordered, by The House of Commons, *to be Printed,*
16*th February*, 1894.

ACCOUNT of the Receipts and Expenditure of the Commissioners of Chelsea Hospital, for Services of Cash and Securities at the commencement and close of the Year.

	Securities.			Cash.			Securities (Stock).			Cash.		
BALANCES on 1st April, 1892:—	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Army Prize Money .. .. (Consols)	79,300	0	0	401	3	2						
Drouly Legacy .. .. .. (Consols)	8,800	0	0	16	13	3						
Stuart Legacy .. .. .. (Consols)	3,600	0	0	79	13	0						
Ranelagh and De La Fontaine Legacies .. .. .. (Consols)	6,133	18	4	238	9	7						
Ditto, Surplus Account .. (Consols)	3,700	0	0									
Whittington Legacy				47	10	6						
							101,533	18	4	783	9	6
RECEIPTS.												
ARMY PRIZE MONEY:—												
Amount transferred to the Commissioners for distribution				..								
Dividends on Securities				2,180	15	0						
Grazing and other rents and produce of plants sold (carried for convenience to this head, to be devoted to the maintenance of the Hospital Grounds)				32	6	2						
Proceeds of 300*l.* Stock sold				294	14	6						
							..			2,507	15	8
LEGACY FUNDS:—												
Drouly Legacy—Dividends on Securities				242	0	0						
Rent of Land				500	0	0						
							..			742	0	0
Stuart Legacy—Dividends on Securities							..			99	0	0
Ranelagh and De La Fontaine Legacies—												
Dividends on Securities							..			164	9	4
Surplus Account—Dividends on Securities							..			101	15	0
							101,533	18	4	4,398	9	6

We hereby certify that the whole of the Expenditure included

Board Room, Royal Hospital, Chelsea,
4th July, 1893.

I certify that this Account has been examined

Examined,
WILLIAM OWEN.

other than those voted by Parliament, in the Year ended 31st March, 1893; showing the Balances (Prepared in pursuance of the Chelsea Hospital Act, 1876, 39 Vict. c. 14.)

		Securities (Stock).	Cash.
EXPENDITURE.			
ARMY PRIZE MONEY, &c.:—	£ s. d.	£ s. d.	£ s. d.
Prize Shares paid to Soldiers and their Representatives ..	14 12 6		
Administration of the Hospital (including Allowances to Secretary, Assistant Secretary, and R.C. Chaplain).	400 0 0		
Bounty to In-pensioner Privates (*see* Note A)	511 0 6		
Maintenance of Grounds and other Hospital Expenses ..	1,933 16 10		
		..	2,859 9 10
LEGACY FUNDS:—			
Drouly Legacy		..	547 16 5
Stuart Legacy		..	69 17 4
Ranelagh and De La Fontaine Legacies		..	65 18 6
Consols sold for account of Army Prize, &c., Fund		300 0 0	..

	Securities.	Cash.		
BALANCES ON 31ST MARCH, 1893, viz.:—	£ s. d.	£ s. d.		
Army Prize Money.. .. (Consols)	79,000 0 0	49 9 0		
Drouly Legacy .. .. (Consols)	8,800 0 0	210 16 10		
Stuart Legacy .. .. (Consols)	3,600 0 0	108 15 8		
Ranelagh and De La Fontaine Legacies .. .. .. (Consols)	6,133 18 4	438 15 5		
Ditto, Surplus Account (Consols)	3,700 0 0			
Whittington Legacy	..	47 10 6		
			101,233 18 4	855 7 5
			101,533 18 4	4,398 9 6

NOTE A.—Paid out of this Fund (to which the Exhibition Rents were credited) pending the incoming of the Rents from the Gordon House Estate.

E. A. STUART,
Lieutenant-Governor and Secretary,
Royal Hospital, Chelsea.

in this Account has been incurred with our approval.

C. SEALE HAYNE, P.G.,
RICHD. K. CAUSTON,
CHAS. M. CLARKE,
} Three of the Commissioners of Chelsea Hospital.

under my directions, and is correct.

C. L. RYAN,
Comptroller-General of Her Majesty's Exchequer,
and Auditor-General of Public Accounts.

REPORT of the Comptroller and Auditor-General on the Account of Chelsea Hospital, in respect of Army Prize and Legacy Funds, for the year ended 31st March, 1893, in pursuance of the provisions of the Act 39 Vict., c. 14, section 1.

Rents small in 1876–77.

1. When the present form of the Chelsea Hospital Account, as settled by the Treasury, was adopted in 1876–77, the receipts on account of grazing and other rents, which it was understood were to be applied to the maintenance of the Hospital grounds, were not of material amount, and were classified under the general head of "Army Prize Money."

Increased by receipts from Naval and Military Exhibitions.

2. In the years 1890–91 and 1891–92, the revenue of the Hospital from "rents" was largely increased by the payments made by the Royal Naval and Military Exhibitions; the rents paid by the two exhibitions amounting to 1,500*l.* The Accounts for those years, however, continued to show that the receipts were to be devoted to the maintenance of the Hospital grounds.

Proposed "Trust Funds" Account.

3. In August 1892 I was informed that the Commissioners proposed to open another Account, to be called "The Trust Funds Account," to which would be credited the rents received from the Royal Naval and Military Exhibitions, and the rents received from the Gordon House property, part of which had been let on building lease, as well as all moneys paid for grazing, sale of plants, &c.

Bounty to In-pensioner privates.

The proposed Account, however, was not opened in 1892–93, but the Account for that year contains, under the head of "Army Prize Money," an additional item of expenditure, "Bounty to In-pensioner Privates," 511*l.* 0*s.* 6*d.*, which, it is explained in a note, has been "paid out of the Army Prize Money (to which the Exhibition rents were credited) pending the incoming of the rents from the Gordon House Estate."

The bounty to In-pensioner Privates is at the rate of 1*d.* a-day per man, and is apparently closely akin to the pay of In-pensioners, which is provided for in the Army Estimates, Vote 15, Chelsea Hospital.

It will thus be seen that in view of past and prospective increases in the rental revenues of the Hospital, the former application of the income from this source has been extended to include a class of expenditure which is new to this Account.

Treasury sanction New Account "Miscellaneous Funds (Rents, &c.)."

4. As the result of correspondence between my Department and the Commissioners, the proposal for opening a new Head of Service has been submitted to and approved by the Lords Commissioners of Her Majesty's Treasury, in accordance with the requirements of Section 34 of the Exchequer and Audit Departments Act, 1866, and the 1st Section of the Chelsea Hospital Act of 1876. It will accordingly be included for the first time in the Account for 1893–94, under the title of "Miscellaneous Funds (Rents, &c.)."

Treasury suggestion of reduction of Vote for In-pension.

5. From correspondence with which I have been furnished, it appears that their Lordships have addressed a letter to the War Office, in which, while not questioning the abstract right of the Chelsea Hospital Commissioners to apply the augmented revenue from rents as they think most conducive to the purposes of the Hospital, they submit that the use of it in the payment of additional bounties to In-pensioners raises the question whether some reduction ought not to be made in the provision of pay for In-pensioners now inserted in Army Vote 15, and whether the general taxpayer should not obtain some relief by virtue of the increase to the Hospital income.

The Treasury letter, which is dated 12th December 1893, has not yet, as far as I am aware, received a reply from the War Office.

(A.) to (G.). Copies of the correspondence are appended to this Report.

C. L. RYAN,
Comptroller-General of the Receipt and Issue of Her Majesty's Exchequer, and Auditor-General of Public Accounts.

Exchequer and Audit Department,
23rd January 1894.

CORRESPONDENCE referred to in the foregoing Report.

(A.)

The Royal Hospital, Chelsea, S.W.,
Sir, Secretary's Office, 12th August, 1892.

I have the honour to inform you that the Lords and others, Commissioners of this Hospital, propose to open another account to be called "The Trust Funds Account," to which they will credit the rents received from the Royal Naval and Military Exhibitions, the rents received from the Gordon House property, part of which has been recently let on building lease, and all moneys paid to them for grazing, sale of plants, &c., hitherto credited to the Prize Fund. Full particulars of the receipt and expenditure in this account will accompany the usual account of the Prize and Legacy Funds now rendered every quarter, and which will in future be called a "Prize, Legacy, and Trust Funds" Account.

I have, &c.,
(Signed) E. A. STUART,
To the Comptroller and Auditor-General. Lieutenant-Governor and Secretary.

(B.)

(No. 686.)

Exchequer and Audit Department,
Sir, 2nd November, 1893.

I am directed by the Comptroller and Auditor-General to advert to your letter of the 12th August, 1892, in which it was notified that the Commissioners of Chelsea Hospital proposed to open another account, to be called "The Trust Funds Account," to which would be credited the rents received from the Royal Naval and Military Exhibitions, the rents received from the Gordon House property, and all moneys paid to them for grazing, sale of plants, &c., hitherto credited to the Prize Fund.

It is observed, in the examination of the Army Prize Account for the year 1892–93, that the proposals of the Commissioners have not been carried into effect, while payments of bounty to in-pensioner privates, amounting to 511*l.* 0*s.* 6*d.*, which are apparently not chargeable to Army Prize Funds, have been debited to that account "pending the in-coming of the rents from the Gordon House Estate."

Under these circumstances, the Comptroller and Auditor-General will be glad to be furnished with any observations that the Commissioners of Chelsea Hospital may desire to offer on the subject.

I have, &c.,
The Secretary, Royal Hospital, Chelsea. (Signed) F. PHILLIPS.

(C.)

(I. 77,782.)

Royal Hospital, Chelsea, S.W.,
Sir, Secretary's Office, 9th November, 1893.

I have the honour to acknowledge the receipt of your lettef of the 2nd instant (No. 686), and am directed to inform you that when the Commissioners decided to give an extra bounty to in-pensioners, they considered that they were quite within their powers in utililizing the Prize Fund, under Section XLII. of the Prize Act of 1832, especially as this fund had been credited with large sums accruing from rents, &c., since the year 1875, including receipts from the two Exhibitions, amounting to 1,500*l.*, which sums are hereafter to be credited to the proposed Trust Fund Account, which, however, will not be in a position to fully meet the expenditure incurred for extra bounty to in-pensioners until the year 1895.

It will thus be necessary to draw on the Prize Fund for a portion of this expenditure until that date.

Strictly speaking, the amount from "Exhibition" rents ought never to have been credited to the Prize Fund, but as this fund is by the Prize Act available for the general purposes of the Hospital, the Commissioners did not consider it necessary to open a new fund at that time, but, as the amounts accruing from rents will increase, it was considered advisable not to further credit the Prize Fund with moneys with which it had no connection, hence the opening of the new account referred to in your letter.

I have, &c.,
(Signed) E. A. STUART,
The Comptroller and Auditor-General. Lieutenant-Governor and Secretary.

(D.)

(No. 1145.)

Exchequer and Audit Department,
Sir, 16th November, 1893.

I am directed by the Comptroller and Auditor-General to acknowledge the receipt of your letter of the 9th instant (I. 77,782), explaining the circumstances under which it has been considered desirable to open a Trust Fund Account in connection with the Chelsea Hospital Army Prize and Legacy Funds Account.

I am in reply to request that the attention of the Commissioners of Chelsea Hospital may be drawn to the fact that by the 34th Section of the Exchequer and Audit Departments Act, 1866, which by the 1st Section of the Chelsea Hospital Act, 1876, is made applicable to the accounts of the Commissioners, it is provided that accounts shall be rendered "in such form as the Treasury shall determine," and the original form of account was accordingly settled by that Department.

I am, therefore, to request that the Comptroller and Auditor-General may be informed whether the question of opening the new account has been referred to the Treasury for their approval.

I have, &c.

The Secretary, Chelsea Hospital. (Signed) F. PHILLIPS.

(E.)

(I. 78,643.)

Royal Hospital, Chelsea, S.W.,
Sir, Secretary's Office, 14th December, 1893.

I have the honour to acquaint you that, in conformity with the Act of Parliament quoted in your letter (No. 1145), dated 16th November last, the Commissioners of this Hospital have referred to the Lords of the Treasury, and obtained their approval to the opening of a new account in connection with the Prize and Legacy Funds Account. A copy of the Treasury letter is herewith forwarded for the information of the Comptroller and Auditor-General.

I am to add that, before the close of the current financial year, the sum of 1,500*l.*, which represents the amount received for Exhibition rents, will be transferred from the Prize Fund to the credit of the "Miscellaneous Funds (Rents, &c.)" Account.

I have, &c.

(Signed) E. A. STUART,

The Comptroller and Auditor-General. Lieutenant-Governor and Secretary.

(F.)

Royal Hospital, Chelsea, S.W.,
Sir, Secretary's Office, 22nd November, 1893.

I am directed by the Commissioners to solicit the permission of the Lords of Her Majesty's Treasury to open a new account, in addition to the Prize and Legacy Funds Account as at present sanctioned.

This course has been rendered necessary under the following circumstances:—

In the year 1890 a portion of the Hospital grounds was let to the Military Exhibition, and in 1891, this, and a further space, was let to the Naval Exhibition. In 1892 the Gordon House grounds were let on a building lease, from which a permanent income will be derived. Hitherto, small amounts, received from sundry quarters, were, for convenience, carried to the Prize Fund, but now, as a considerable income will accrue, in no way connected with that fund, the Commissioners consider it advisable to open a new account to be called the Trust Fund, to which all sums derived from this Gordon property, together with all small receipts, hitherto credited to the Prize Fund for convenience, should be carried; and they further propose that a sum equivalent to the amounts received from the Military and Naval Exhibitions should be re-transferred to the new account. The Auditor-General has pointed out that the formal sanction of the Treasury is necessary to legalize the proposals of the Commissioners, under the 34th Section of the Exchequer and Audit Act of 1866, and the 1st Section of the "Chelsea Hospital Accounts Act" of 1876.

I have, &c.,

(Signed) E. A. STUART,

The Secretary to the Treasury. Lieutenant-Governor and Secretary.

(G.)

(17048–93.)

Sir, Treasury Chambers, 12th December, 1893.

In reply to your letter of the 22nd ultimo, the Lords Commissioners of Her Majesty's Treasury direct me to say, for the information of the Commissioners of the Royal Hospital, Chelsea, that my Lords, under Section 34 of the Exchequer and Audit Departments Act, 1866,

and Section 1 of the Chelsea Hospital Act, 1876, approve of the opening in the account of receipts and expenditure rendered by the Commissioners to the Audit Office, of a new head of service for the receipts of grazing and other rents, and miscellaneous revenue, and for the payments thereout.

My Lords suggest that the title of this new head should be "Miscellaneous Funds (Rents, &c.)," instead of "Trust Fund."

I am at the same time to enclose a copy of a letter of to-day's date which my Lords are addressing to the War Department on the subject of the use made by the Hospital Commissioners of this Miscellaneous Revenue.

I am, &c.

The Lieutenant-Governor and Secretary, Chelsea Hospital. (Signed) R. E. WELBY.

Enclosure.

(17,048–93.)

Sir, Treasury Chambers, 12th December, 1893.

The Lords Commissioners of Her Majesty's Treasury have received a letter from the Commissioners of Chelsea Hospital dated the 22nd ultimo, of which a copy is enclosed, asking permission to open a new account for rents, &c., separate from the Accounts for Army Prize and Legacy Funds.

I am to request you to inform Mr. Secretary Campbell-Bannerman that my Lords, under Section 34 of the Exchequer and Audit Departments Act, 1866, and Section 1 of the Chelsea Hospital Act, 1876, are approving of the opening in the account of receipts and expenditure rendered by the Chelsea Hospital Commissioners to the Audit Office, of a new head of service under the title of Miscellaneous Funds (Rents, &c.), for the receipts of grazing and other rents, and miscellaneous revenue, and for the payments thereout.

I am to add that my Lords understand that until recently the grazing and other rents and proceeds of sale of plants, &c., have been devoted to the maintenance of the Hospital grounds; but that since the amount of these receipts has been greatly augmented by the letting of sites for the Military and Naval Exhibitions of 1890 and 1891, and the lease of the Gordon House grounds for building plots, the proceeds have been used, in part, for payment of additional bounties to in-pensioners.

My Lords do not question the abstract right of the Commissioners to apply this revenue as they think most conducive to the purposes of the Hospital, but they submit that the particular use of it above-mentioned raises the question whether some reduction ought not to be made in the provision for pay of in-pensioners now inserted in Army Vote 15.

If the endowments of the Hospital had been sufficient to provide the inmates with pocket money in the first instance, my Lords presume that the provision in question would never have been made, and it seems seems fair, therefore, that the general tax-payer should obtain some relief by virtue of this increase in the Hospital revenues.

I am, &c.,

The Financial Secretary to the War Office. (Signed) R. E. WELBY.

Appendix III.

GENERAL STUART'S Scheme for constructing a new Hospital in the Country and maintaining 1,100 In-Pensioners therein.

Assets.	£	£
Ground Rents for the site of the Hospital, if let on lease as building land		25,000
Value of Pensions surrendered by 1,100 men admitted to in-pension, viz. :—		
750 Permanent pensioners at (say) 11½*d.* a-day	13,125	
350 Temporary pensioners at 6*d.* a-day	3,194	
		16,319
Difference beween the value of the pensions surrendered, at the present time, and the amount of the present In-pension Vote (exclusive of the Secretary's office) to be contributed by Parliament		13,144
Ground Rents from Hospital lands already leased (exclusive of the Gordon Estate)		500
Total Assets		54,963

Liabilities.	£
Cost of establishment for 1,100 In-pensioners, estimated upon the cost of the present Chelsea establishment, as shown in Schedule A (omitting rates, fuel, light, maintenance of building, &c.)	39,262
Sinking fund for repayment, by annual instalments, in 30 years (capital and interest) of a sum of 100,000*l.* borrowed to pay for new buildings, land, furniture, &c.	5,437
N.B.—It is presumed that the new buildings, &c., would cost about 200,000*l.*; half of this sum could be borrowed and repaid in a term of 30 years, while the other half could be provided by sale of the Securities now held by the Chelsea Commissioners, on account of the unclaimed Army prize money and legacy funds, for the benefit of In-pensioners.	
Total amount of Liabilities	44,699
Balance available for management, medical attendance, clerical assistance, fuel, light, rates, maintenance of building, furniture, and grounds, contingencies, &c., and, if necessary, for the increase of the sinking fund for new buildings, &c.	10,264
Total	54,963

SCHEDULE A.

Pay of Chelsea in-pensioners—

	£	£
Voted funds	1,399	
Private funds	710	
		2,109
Clothing (including 220*l.* for overcoats)		2,602
Provisions, ale, &c. (including infirmary diets) ..		10,371
Bread		900
Medicines		177
Medical comforts		303
Funeral expenses, household disbursements, &c. ..		470
Subordinate staff—		
1 Matron	150	
32 Nurses	1,000	
7 Staff-serjeants	311	
5 Infirmary orderlies	96	
8 Constables	118	
4 Cooks (infirmary)	73	
1 Porter	18	
1 Linen orderly	18	
1 Cellarman	23	
6 Cooks (great kitchen)	110	
9 Coal porters, &c.	152	
39 Ward orderlies	254	
7 Miscellaneous servants	55	
		2,378
Laundry staff		221
Fire insurance		100
Total		19,631
Add—		
Repairing and maintaining buildings and furniture, and supply of fuel and light (omitting Officers' quarters), say		6,000
Rates		1,426
Grand Total		27,057

NOTE.

	£	*s*	*d.*	
Cost of 550 in-pensioners	27,057	0	0	per annum.
Cost of one in-pensioner	49	3	10	„
Or	0	2	8	per day.

Appendix IV.

NUMBER of Temporary Pensions (Conditional) awarded by the Commissioners of Chelsea Hospital from 1881 to 1893.

1881	719
1882	767
1883	693
1884	456
1885	604
1886	524
1887	403
1888	468
1889	528
1890	676
1891	631
1892	503
1893	533
Total for 13 years	7,505

Average—577 per annum.

E. A. STUART,
Lieutenant-Governor and Secretary

ROYAL HOSPITAL, CHELSEA, S.W.,
6th July, 1894.

Appendix V.

RETURN of the number of applications for admission and re-admission to the Royal Hospital, Chelsea; of the number of Men admitted and re-admitted; of the number of applications refused; and of the number of Men discharged from the Hospital, from 1st January, 1882, to 31st December, 1893.

Year.	1. Number of applications.	2. Number of Men admittted and re-admitted.	3. Number of applications refused.	4. Number of Men discharged.
1882	136	61	41	16
1883	130	79	41	24
1884	168	90	65	31
1885	155	82	60	28
1886	323	93	162	22
1887	249	88	124	21
1888	169	81	98	20
1889	176	61	90	15
1890	180	89	79	24
1891	197	90	96	23
1892	255	86	90	16
1893	253	71	126	28
Totals ..	2,391	971	1,072	268

E. A. STUART,
Lieutenant-Governor and Secretary.

13*th July*, 1894.

NOTE.—(1.) The numbers in first column in any one year will not equal the numbers in second and third combined, as admissions are made, as a rule, from applicants of a preceding year, of whom about 100 usually remain over. Nor will the figures be equal in a term of years, unless account be taken of the number of applicants who die or withdraw their claims.

(2.)—Out of 96, 90, and 126 applicants refused admission to In-pension in 1891, 1892, and 1893 respectively, 29 were refused as "ineligible" (*i.e.*, not within the terms of the Warrant) in 1891, 25 in 1892, and 22 in 1893.

Appendix VI.

STATEMENT of the net amount found to have been transferred from the Unclaimed Army Prize Money to the Exchequer at the close of each year from 1841 to 1854, with memorandum and correspondence relating thereto.

	£	*s.*	*d.*
1841–42	2,752	5	10
42–43	2,158	15	8
43–44	8,620	18	10
44–45	2,047	7	7
45–46	2,290	10	9
46–47	2,032	6	4
47–48	9,463	4	4
48–49	3,583	13	3
49–50	5,327	14	0
50–51	2,709	19	11
51–52	329	16	8
52–53	679	12	4
	41,996	5	6
Less amount found on final adjustment in March, 1864, to have been erroneously shown as transferred	852	4	10
	41,144	0	8

ROYAL HOSPITAL, CHELSEA,
10*th July*, 1894.

MEMORANDUM on the Item of 41,144*l.* 0*s.* 8*d.* in the Prize Accounts.

In the various Acts of Parliament that since 1809 have placed the management of Army prize money under the control of the Chelsea Board, a clause has always been inserted which distinctly empowered them to apply all monies arising from forfeited or unclaimed shares to the general services of the Hospital, and this has been continuously and regularly done up to the present date, with the exception of 12 years, from 1842 to 1854, when, at the end of each financial year, the cash balances standing to the credit of the Chelsea Board, including large sums entrusted to them for distribution, amounting altogether to 41,144*l.* 0*s.* 8*d.*, were paid by the Paymaster-General in pursuance of Treasury minutes into the Exchequer without the sanction of the Commissioners in whose immediate control they were vested, thus compelling the Commissioners to draw on other funds, and, at times, absolutely to borrow money in order to meet the demands on that which had been withdrawn.

The Chelsea Board frequently remonstrated against such a course, which after long delay was admitted to have been illegal, and the Treasury agreed to refund the money thus irregularly transferred, which, however, still remains unpaid, although the Hospital has thereby been at times subjected to grave inconvenience.

The error as above described would seem to have arisen at a time that great changes were being carried out in the relative organization of the Chelsea Board, and the War Office which lead to some confusion in the accounts.

This item will also be found alluded to in the Report on Chelsea and Kilmainham Hospitals, presented to Parliament in 1870, Appendix BB., page 70, footnote (*d*).

GEORGE HUTT,
Secretary.

ROYAL HOSPITAL, CHELSEA,
22*nd July*, 1876.

A.

Royal Hospital, Chelsea,
4th August, 1876.

Dear Mr. Welby,

I enclose copies of some correspondence on the subject of this 41,144*l.* 0*s.* 8*d.*, which is beyond all doubt due to Chelsea Hospital. Unfortunately a practice obtained in those days of transacting very important business *vivâ voce*, of which no official record was made.

My predecessor told me, on giving over charge, that the Treasury were prepared to acknowledge this claim whenever put forward, and it has only been withheld because there was no pressing necessity for urging it, but as that necessity has now arisen, I hope there will be no difficulty in adjusting the debt, as unless this is done an opportunity will be lost of acquiring a plot of land adjoining the Infirmary, which will otherwise, to our detriment, be built on.

There are also some other heavy demands on it, which can only be met through these sources.

Very truly yours,
GEORGE HUTT,
Secretary.

R. Welby, Esq., C.B.,
Treasury.

Enclosures to A.

1.

Office of Her Majesty's Paymaster-General,
3rd June, 1852.

Sir,

With reference to your letter of the 2nd instant (P. 56, 690), I am directed to acquaint you that the sums received on account of the Unclaimed Army Prize Fund for the year ending the 31st March, 1851, were all paid over to the Exchequer, since which period, viz., from the 1st April, 1851, the practice has been discontinued.

I am, &c.,
W. G. ANDERSON.

A. J. Moorhead, Esq.,
&c., &c.

2.

War Office,
17th August, 1853.

Sir,

In acknowledging the receipt of your letter of the 11th instant (P. 58, 246), I am directed to annex, for the information of the Commissioners of Chelsea Hospital, agreeably with your request, the accompanying statement showing the items which constitute the sum of 5,523*l.* 0*s.* 6*d.* paid over to the Exchequer on account of extra receipts and adverted to in the account of the Army receipt and expenditure for the year 1848–49 (Parliamentary Paper No. 488). Similar particulars are also given regarding the sum of 2,036*l.* 10*s.* 8*d.* received in 1851–52 (Parliamentary Paper 508).

I have, &c.,
B. HAWES.

A. J. Moorhead, Esq.,
Chelsea Hospital.

3.

War Office,
16th February, 1854.

Sir,

The Commissioners of Chelsea Hospital, under the authority of the Acts 2 William IV., cap. 53, and 11 and 12 Vict., cap. 55, having intimated their wish that the dividends on the stock of the Army Prize Fund should for the present be retained, instead of being transferred to the Exchequer, I am directed to acquaint you, for the information of the Lords Commissioners of Her Majesty's Treasury, with reference to their minute of 2nd May, 1848, directing that all extra receipts formerly abated on the Estimates as "appropriations in aid" should be so paid over every quarter.

The Acts quoted appear to reserve to the Chelsea Commissioners the application of the dividends, but should their Lordships object to the arrangement under which the money is withheld from the Exchequer, the favour of their instructions is requested before the close of the ensuing month.

I have, &c.,
B. HAWES.

Sir C. E. Trevelyan, K.C.B.,
&c., &c.,
Treasury.

4.

Treasury,
18th February, 1854.

My dear Sir,

Before we enter into an official correspondence on this subject with the Commissioners, I wish to ascertain from you what are the facts of the case.

The rule is now so fully established that there should be no special appropriation of public funds, and that all incidental receipts should be paid over to the Exchequer, that I think there must be some mistake.

Yours very truly,
C. E. TREVELYAN.

A. J. Moorhead, Esq., Secretary,
Chelsea Hospital.

5.

Royal Hospital, Chelsea,
20th February, 1854.

My dear Sir,

In returning the letter you sent me on Saturday evening from the War Office, I will, as briefly as it is in my power, state the facts of the case, which are not very clearly explained in that letter. You are aware that the control of the Prize Fund is vested by sundry Acts of Parliament in the Commissioners of this Hospital. Formerly acting under the authority thus placed in their hands, and in concert with the Government for the time being, large sums of money were given from the said fund in aid of the out and in-pension votes. Since the adoption of the rule you advert to, that there should be no special appropriation of public funds, and, indeed, for a long time previously, the only monies paid from prize, excepting to prize claimants, and 30,000*l.* to the Military Asylum under a special Act of Parliament, have been those paid over to the Exchequer.

When, however, the system of passing over sums to the Exchequer was introduced, there seems to have been a sort of understanding that the surplus only should be dealt with, after making provision for the probable requirements of the fund (whereas the Commissioners, in whom alone power is vested to appropriate, are the only parties never consulted in the matter, and the whole amount of money in the hands of the Paymaster-General at the termination of the year is paid to the Exchequer) the Commissioners in the meantime, and until money comes in either from incidental receipts or interest arising from the money they possess in the Funds (about 60,000*l.* 3 per cents.), being in the position of drawing checks upon their banker (the Paymaster-General), the latter having no assets of theirs in his hands.

All that is asked on the part of the Commissioners is, that this anomalous state of things should cease; that on receiving a statement quarterly of how the Prize Fund stands in the Paymaster-General's books, they should fix the sum probably required during the forthcoming quarter, and authorize the payment of the surplus (if any) to the Exchequer.

I send you some statements (Nos. 1, 2 and 3) which will afford you fuller explanation on the subject; but, not having copies of them, I must trouble you to let me have them back again. We have had no correspondence on the subject with the War Office. I enclose a copy of my letter of the 2nd instant to Mr. Anderson and of his reply, after consulting Lord Stanley on the matter. It may be a question whether, legally speaking, our Commissioners have done right in paying the money at all over to the Exchequer, but that is a point I have no orders to dispute.

I remain, &c.,
A. J. MOORHEAD.

Sir C. E. Trevelyan, K.C.B.,
&c., &c.,
Treasury.

6.

Paymaster-General's Office,
My dear Sir, 16th December, 1854.

When I proposed that the dividends on Captain Stuart's bequest should be carried to the Paymaster-General's cash account, I did not intend that they should remain there. When there it will be for the Commissioners of Chelsea Hospital to direct their investment, either by a special or a general order. By this means we shall have the fact of their having been received on record. Moreover, we shall by this means place the proceedings in regard to this stock on a footing with the Ranelagh, De la Fontaine, and Drouly legacies, the interest of which passes through the Paymaster-General's account.

I am aware that these legacies belong exclusively to the Hospital, and I will take care that no part of the prize money is handed over to the Exchequer without your previous knowledge.

Yours most truly,
E. A. HOFFAY.

A. J. Moorhead, Esq.

B.

The Royal Hospital, Chelsea, S.W.,
Secretary's Office,
Sir, 4th December, 1876.

I am directed by the Lords and others, Commissioners of this Hospital, to bring to your notice that a sum of 41,144*l.* 0*s.* 8*d.* as per enclosed statement, is due by your department to the Hospital for more than twenty years past, during which time the Institution has been deprived of the principal sum and the interest which would have accrued thereon.

The whole of the lands and buildings of the Hospital have been purchased or erected from funds of which this sum was a part, and the principle has been uniformly maintained that the cost of all primary improvements and additions should be defrayed from the same source.

The perfect validity of the debt appears to have been admitted, and repayment promised whenever any urgent occasion should arise for utilizing the money for the benefit of the Hospital.

Under the improvements recently carried out by the Metropolitan Board of Works, in the embankment of the Thames (Chelsea Extension) a piece of land immediately adjoining the Infirmary of the Hospital, on the south-west side, has become vacant, and unless secured to the Hospital this land will shortly be built upon, thereby seriously impairing the ventilation of the Infirmary, and otherwise occasioning inconvenience to this important branch of the establishment.

The funds at the disposal of the Commissioners are at this moment barely sufficient to cover the annual charge for the maintenance of the grounds, and for other contingent expenditure.

The Commissioners, therefore, direct me to request that a part payment of the foregoing debt, to the extent of 5,000*l.* may now be made to enable them to secure this plot of land. They trust that the Lords Commissioners of Her Majesty's Treasury will admit the urgency of this request, as unless the open space can be immediately secured it must be irrevocably lost to the Hospital.

I have, &c.,
GEORGE HUTT,
Secretary.

The Secretary, Treasury.

Enclosure to B.

STATEMENT explanatory of the Balance of 41,144*l.* 0*s.* 8*d.* shown in Army Prize Accounts as "Appropriated by the Treasury."

By law, as for instance in Section 43 of 2 William IV., cap. 53 (and in other Acts), the Commissioners of Chelsea Hospital are authorized by "Warrant under their hands . . . . . from time to time to appropriate such sums of money forming a part of the Prize Money already forfeited and unclaimed . . . . as they may think expedient and proper, to the general services and expenses of the said Royal Hospital, or relating thereto."

They have continued to do so from the year 1809 down to the present time, and have in this way contributed a total sum of 619,194*l.* 0*s.* 1*d.* in reduction of the Votes for In and Out Pension. The whole of this money was granted by Warrants under the hands of the Commissioners as the Act directs.

The sum, however, at the head of this paper, though at one time under the control of the Commissioners, has never been applied under their authority, and has been removed from under their control without their consent.

It occurred in this way. The cash balances to the credit of the Commissioners in the books of their Treasurer (who is also the Paymaster-General), at the close of the several years from 1843 to 1854 were paid by him into the Exchequer. This was done under a misapprehension of Treasury Minutes, or by virtue of Treasury Minutes framed under a misapprehension, inasmuch as this money was not public money. The Commissioners frequently during those years remonstrated against the course which was being pursued, but it was only after the lapse of many years that the irregularity of the proceeding was admitted and the course abandoned.

By that time, the sum stated above, had gone into the Exchequer, but as no immediate necessity was felt for its expenditure by the Chelsea Board, a refund from the Exchequer was not then pressed for, but it has always been understood that such refund would be made when required. It has therefore been always treated in the Accounts, Parliamentary and other, as a balance to the credit of the Commissioners of Chelsea Hospital.

C.

Treasury Chambers,
29th December, 1876.

Gentlemen,

I have laid before the Lords Commissioners of Her Majesty's Treasury General Hutt's letter of the 4th instant, in which it is stated that a sum of about 41,144*l.* has been for a long period of years due by this department to the funds of Chelsea Hospital; and requesting that a part payment of the alleged debt to the extent of 5,000*l.* may be made to the Commissioners, to enable them to purchase a plot of ground on the Thames Embankment, and adjoining the Hospital Infirmary.

In reply, their Lordships have directed me to acquaint you that no record can be found in this department of any document by which this Board has acknowledged any obligation on their part with reference to the alleged debt of 41,144*l.*; and as the moneys would appear to have been paid into the Exchequer, or appropriated in aid of votes by Her Majesty's Government for the time being, my Lords are not disposed now to admit any claim for repayment of this sum, which could only be done by vote of Parliament.

I am to add that my Lords are not prepared to submit a vote to Parliament for the sum of 5,000*l.* required for the purchase of the land referred to.

I am, &c.,
C. W. STRONGE,
Pro. *Secretary.*

The Commissioners of Chelsea Hospital.

Appendix VII.

History of the Poundage of 1*s.* first stopped from the Pay of the Army in 1662 and of "Hospital Money" first imposed in 1684.

Prior to 1783 the House of Commons merely voted a lump sum for the Officers, non-commissioned officers and men of each regiment (*see* the Army Estimates for 1692), leaving the distribution of the money to be regulated by Royal Warrant. The system then in force is fully explained, in the following extract from the 9th Report of the Commissioners appointed to Examine, &c., the Public Accounts of the United Kingdom," dated 29th March, 1783, page 14: —"The Establishment under the Royal Sign Manual, with the regulation of the subsistence, and the Warrants directing the deductions, annexed thereto, is the instrument that regulates the pay of the Army: it contains the distribution of the whole sum voted by Parliament for defraying the charge of the land forces, in certain portions, among the several regiments, troops, companies, and garrisons." Annex 9.

Pages 18, 19:—"The Establishment which pursues the estimate for the Army services, presented to the House of Commons, and is the instrument that contains the distribution of the sum granted for those services, originates in the War Office; and the authority for every payment made by the Paymaster-General, pursuant to that Establishment, passes through the same office. . . . The first source of perplexity in the present mode of paying the Army is found in the Establishment. The sum therein allotted for a regiment, is distributed among the several ranks of the Army as if it were the actual pay of the persons in such ranks, and in many Warrants directing the disposition of that sum, it is styled the Pay of the Forces; whereas, not a person therein described does in fact receive, either by the day or year, the sum affixed as the pay of his rank.

"The services to which the sum allotted to a regiment is at present applied, are these: The subsistence and arrears to the Officers, the subsistence of the non-commissioned officers, the subsistence and returned poundage of the private men, the Clothing of the non-commissioned officers and men, the Recruiting Fund, and the Agency. . . . . The Establishment of a regiment would become more simple and intelligible, if it were relieved from all these services, except the pay of the Officers and private men, and if the divisions of the sums therein stated were made conformable to the actual pay of the several ranks. To effect this, the fictitious men . . . . must be suppressed; the allowance to widows, and the deductions of the Poundage and Hospital must be abstracted; separate specific funds, formed upon estimate, must be substituted for the clothing, the recruiting service, widows, Chelsea Hospital, and the other miscellaneous services now paid out of the poundage; and distinct accounts must be kept of the expenditure of each.

. . . . . .

"The establishment freed from the provision for the services above mentioned will consist of the subsistence and arrears only."

The Committee give the following description of the fund for clothing referred to above (page 21). "The fund for the clothing is the net off-reckonings, that is, the difference between the subsistence of the non-commissioned officers and private men and their full pay, after deducting the poundage, hospital, and agency upon their full pay. Though the total sum allotted for a regiment is directed by the Pay Warrant to be paid to the Colonel, and his agent endorses it; yet this clothing fund is not applied by the Colonel himself. The Paymaster-General is directed by the Mutiny Act to pay the off-reckonings to such person only as has a regular assignment of

them, and therefore the Colonel always assigns them, either to the clothier or to his own agent. The assignee receives them of the Paymaster-General, and thereout defrays the cost and all the expenses attending the clothing; and for the residue he accounts to the Colonel.

These authoritative statements show, that prior to 1783 the gross pay of the various ranks, in the regiments of the Army, as detailed in the Establishment Warrant, did not represent the actual amount of daily pay which each person was entitled to receive personally; and that the daily rates, so shown, were gross rates, divisible into two parts: (*a*) personal pay or subsistence, (*b*) gross off-reckonings, or the difference between the gross pay and the personal pay. They also made it clear that the gross off-reckonings were subject to the deductions for poundage, hospital money, and agency, leaving a balance called net off-reckonings, which was paid to the assignee of the Colonel to be spent on the provision of clothing.

The records of the War Office show that the system described above was in force from 1660 to 1783.

Annex 1. It is also found that the division of the gross pay of the soldier into personal pay (or subsistence) and off-reckonings, &c., was in force in the reign of Queen Elizabeth, when the gross pay of an Infantry soldier was 4*s.* 8*d.* a-week; his personal pay being 3*s.* a-week, and the off-reckonings 1*s.* 8*d.* a-week (*see* Grose's Military Antiquities, page 327).

Annex 2. The Establishment Warrant for 1660 shows that the gross pay of a private of Infantry was still 8*d.* a-day.

Annex 3. Annex 4. The Establishment Warrant for 1679 fixed the gross pay of the foot soldier at 8*d.*, as before, and the Royal Warrant of 31st December of the same year, shows how the 8*d.* was to be divided, viz., 6*d.* a-day, to be paid weekly, to the soldier as subsistence, and the balance, or off-reckonings, of 2*d.* a-day, to be issued before the end of the succeeding muster.

The same Royal Warrant ordered a deduction of 1*s.* in the pound, to be made from the gross pay of the Army, in continuation of a private arrangement, made in 1662, between Sir Stephen Fox and the Colonels of regiments, whereby the former undertook to issue the "subsistence" or personal pay of the Army, in advance, in consideration of a payment to him of 5 per cent. on the gross pay of the Army. The agreement between Sir Stephen Fox and the Colonels is not to be found in the War Office records of the period, but the

Annex 13. nature of it is fully described in Mr. Pepy's Diary, under date 16th January, 1666. This agreement between Sir Stephen Fox and the Colonels was in force until 1679, when, owing to the financial difficulties of the Government, Sir Stephen Fox withdrew from the arrangement.

The King by the Royal Warrant, 31st December, 1679, referred to above, undertook to continue the same arrangement, through the direct agency of the Lords of the Treasury, the percentage on the pay being charged and appropriated as follows: "One-third to Exchequer fees and charges of the office of Paymaster, and the other two-thirds shall be applied to Our own use in lessening the establishment of Our Forces."

As stated above, the gross pay of the private of Infantry was 8*d.* a-day in 1679, and the Warrant of the 31st December of the same year directed 6*d.* a-day to be issued weekly to him. The poundage deduction, which was ordered to be continued by the same Royal Warrant, must have been taken out of the off-reckonings, or balance of gross pay, remaining after the payment of the personal pay, or subsistence, to the soldier.

This is confirmed by a reference to the Royal Warrant of the 27th

Annex 8. November, 1687, which directed "the said off-reckonings to be employed by the Colonels of each respective regiment for the clothing and poundage, and to satisfy all other remaining expenses."

The actual distribution of the gross pay of each rank in the Army, between 1660 and 1783, is set forth in detail in the War Office accounts and

Annexes 10 and 11. records of the period, *e.g.*, "The List of the Land Forces of 1695." This account shows that the gross daily pay of 8*d.*, allowed for the maintenance of the private of Infantry was distributed as follows:—

6*d.* a-day to the soldier as his personal pay.
2*d.* a-day as gross off-reckonings.
Total 8*d.* a-day.

The account also shows that the Paymaster, after deducting poundage and Hospital money from the gross off-reckonings, issued the balance to the agent, who deducted 2*d.* in the pound on the gross pay for his own use, and issued the balance or "net off-reckonings" to the assignee of the Colonel, to meet the expense of clothing the soldier.

The annual Establishment Warrants of the period in question, fixing the gross pay assigned to each rank, together with the warrants attached thereto, regulating the amount of personal pay to be issued weekly to the soldier, and the deductions to be made by the Paymaster-General from the off-reckonings, afford complete evidence of the system in force until 1783, under which a gross rate of pay to cover all expenses connected with the maintenance of the troops, was first fixed. The Warrant then laid down the amount to be issued as personal pay to each rank, and further prescribed deductions to be made from the gross daily pay for certain specified purposes. Extracts from the Establishment Warrants for 1684 are annexed. Annex 6.

On 17th June, 1684, a Royal Warrant was issued which ordered a deduction of one day's pay from the troops every year, and two days' pay every leap year, towards the building of Chelsea Hospital and the maintenance of the soldiers provided for therein. The annual Establishments Warrants from 1684 to 1783, show that this deduction was made during that period. For the reasons stated above it is clear that this deduction as well as the poundage deduction, already referred to, was not made from the personal pay or "subsistence" of the non-commissioned officers and men of the Army, but was exclusively charged to, and deducted from the off-reckonings. Annex 7.

The position and pay of the non-commissioned officers and men were therefore in no way affected by these deductions.

The conclusion that the deductions referred to were not made for the personal pay of the rank and file of the Army is fully borne out by an official letter of the Hon. Edward Elice, the Secretary at War in 1834. He says, in speaking of the deductions from the soldiers' pay, "It is remarkable that the privates and non-commissioned officers of the Army did not, in reality, contribute anything, and were in no respect whatever affected by these deductions. Annex 12.

"The gross or full pay of the soldier was divided into subsistence and off-reckonings. The subsistence was the man's personal pay, and was all over which he had control; the off-reckoning was the portion of his full pay set apart, and allowed to the Colonel for providing the clothing and accoutrements of his men; and after paying 2*d.* in the pound to the agent, the balance was the Colonel's admitted profit. The two deductions for poundage and Hospital money were not made from the subsistence or the soldier's portion of his gross pay, but from the off-reckoning; thus the contributions to the Hospital were in reality taken from the Colonel's clothing profit, and not from the pay of the soldier, who received, as before, his net subsistence, viz., 6*d.* a-day in the Infantry."

The generally received idea that Chelsea and Kilmainham Hospitals, were built and maintained out of stoppages from the pay of the soldier is probably founded on a misapprehension due to the form in which Army supplies were voted in the seventeenth and eighteenth centuries. The Army Estimates of that period consisted simply of a list of the various regiments in the Service, the number of troops and companies, and the total number of all ranks in each regiment, and finally the total "pay" per annum of each regiment. This term "pay" not only covered the personal pay of Officers and men, but the cost of their maintenance. Any deduction from the gross supply was therefore spoken of as a deduction from the "pay" of the Army, but the deduction was not from the personal pay of the soldier, but merely a deduction from the gross amount voted for the maintenance of corps.

Purposes to which the Poundage and the Stoppage of Days Pay were applied.

A statement is annexed showing the authorized appropriation of the deductions for "poundage" and "hospital money" from 1662 to 1770. Annex 1

The deduction of 1*s.* in the pound from the gross pay of the Army was not made for Chelsea Hospital, but purely as a consideration for the more prompt and punctual issue of the pay of the troops.

When Sir Stephen Fox, in 1679, ceased to carry out the arrangement made with him in 1662, one-third of the poundage which he had received was devoted to cover the expenses of the Paymaster-General's Office, and the remainder was taken by the Government in lessening the establishment (*i.e.*, the cost) of the Army.

Annex 5. By a letter under the Privy Seal, dated 17th May, 1683, one-third of the poundage was applied for the use of Chelsea Hospital, and by a Royal Warrant,

Annex 6. of 17th March, 1684, two-thirds were to "remain in the Paymaster's hands upon account, to be disposed of, either towards erecting building and maintaining Our Royal Hospital at Chelsea for aged, maimed, and infirm land soldiers, or towards the payment of the establishment of Our Forces as We shall from time to time direct, by the commissions of Our Treasury" . . . . "So as what shall be undisposed of towards the use of the said Hospital be applied to the lessening the charges upon the establishment of Our said Forces." Practically this arrangement remained in force until 1783, when the whole system of Parliamentary Votes for the Army was changed, and the deduction of poundage ceased.

The Royal Warrant of 17th June, 1684, stated that—

Annex 7. "Having, out of Royal disposition towards the relief of old maimed soldiers, thought fit to erect an hospital for their support, and being graciously inclined by all fitting means to direct a further supply towards the perfecting and maintenance thereof, Our Will and Pleasure is that one day's pay be drawn and deducted from Our Guards and garrisons every year, and two days' every leap year, towards the building of Our Royal Hospital, and maintenance of such soldiers as, having served Us by land, shall be provided for therein."

From these Warrants, it would seem—

1st. That such portion of the two-thirds of the poundage as might be necessary was to be used for "erecting, building and maintaining" the Royal Hospital at Chelsea for aged, maimed, and infirm soldiers, the undisposed balance being applied in reduction of the cost of the Army.

2nd. That the deduction of the day's pay from the Army was intended to be used for perfecting the buildings at Chelsea, and for the maintenance of the soldiers "provided for therein."

There is nothing to indicate that it was intended that these funds should be used for increasing the rates of out-pensions.

War Office,
11*th July*, 1894.

ANNEX 1.

EXTRACT from Grosse's Military Antiquities (page 327).

A very particular account of the clothing of the Army employed in Ireland, Anno 1559, is given by Sir John Harrington, wherein the different articles are specified and the prices stopped for them weekly from the Subaltern Officers and private soldiers.

"But I must not forget," says he, "nor cease to tell Her Majesty's good, wise, and gracious providings for us Her Captains and our soldiers . . . . for our backs and bellies. That is to say, every Captain of a hundred footmen doth receive weekly, upon every Saturday, his full entertainment of twenty-eight shillings, in like case every Lieutenant fourteen shillings, and every Ensign seven shillings, our serjeant, Surgeon, drum and fife, five shillings pay by way of imprest, and every common soldier three shillings to be delivered to all by the pole weekly. To the last four lower Officers two shillings weekly, and for every common soldier twenty pence weekly, is to be answered to the full value thereof in good apparel of different kinds, part for winter, and part for summer, which is ordered to be of good quality and stuff for the prices, patterns whereof must be sent to the Lord Deputy to be prepared and compared as followeth: —

Apparel for a Common Soldier in Winter.

	£	*s.*	*d.*
A cassock of Kentish broad cloth, lined with cotton and trimmed with buttons and loops	0	17	6
A doubtlet of canvas with white linen lining	0	12	6
A hat cap covered	0	7	0
2 shirts of Osnabridge Holland, and bands	0	8	0
3 pairs of neats leather shoes, 2*s.* 4*d.* each	0	7	0
3 pairs of Kersey stockings	0	8	0
1 pair of venetians of Kentish broad cloth with buttons, loops, and linings of linen	0	13	4
	3	13	4

In Summer.

	£	*s.*	*d.*
2 shirts of Osnabridge and 2 falling Holland bands ..	0	7	0
2 pairs neats leather shoes	0	4	8
1 pair of stockings	0	2	8
1 hat cap coloured	0	3	0
	0	17	4
	3	13	4
Total	4	10	8

ANNEX 2.

"AN Establishment of the Forces raised by His Majestie" (endorsed "Establishment of the Forces to be raised"). Extracted from State Papers (Domestic), Ch. ii., Vol. 29, No. 45 (1660).

HIS MAJESTIES OWN TROOPE OF GUARDS.

	Per diem.			Per mensem.			Per annum.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
The Captain	1	10	0	..			..		
Foure Lieutenants, at XV*s.* each	3	0	0	..			..		
Cornett	0	14	0	..			..		
Quarter-Master	0	9	0	..			..		
A Chaplaine, at	0	6	8	..			..		
A Chyrurgion, vj*s.*, and one horse to carry his chest, ij*s.*	0	8	0	..			..		
Foure corporalls. each at vij*s.*	1	8	0	..			..		
Foure trumpeters, each at v*s.*	1	0	0	..			..		
One kettle drum, at	0	5	0	..			..		
200 souldiers, at iiij*s.*	40	0	0	..			..		
Total	49	0	8	1,372	18	8	17,849	2	8

HIS HIGHNESS ROYALL THE DUKE OF YORKE, HIS TROOPE OF GUARDS, VIZ.—

	Per diem.	Per mensem.	Per annum.
	£ s. d.	£ s. d.	£ s. d.
The Captaine	1 0 0	..	..
Lieutenant	0 15 0	..	..
Cornett	0 13 0	..	..
Quarter-Master	0 9 0	..	..
A Chaplaine	0 6 8	..	..
A Chyrurgion, vj*s.*, one horse for his chest, ij*s.* ..	0 8 0	..	..
Foure corporals, each at vj*s.*	1 4 0	..	..
Foure trumpeters, each at v*s.*	1 0 0	..	..
One kettle drum, att	0 5 0	..	..
150 souldiers, each iiij*s.*	30 0 0	..	..
Totall	36 0 8	1,008 18 8	13,118 2 8

HIS EXCELLENCY THE DUKE OF ALBEMARLE, HIS TROOPE OF GUARDS.

(The same as the preceding one.)

FIELD and Staff Officers of a Regiment of Horse, consisting of six Troops, each contayning 100 souldiers besides Officers.

	Per diem.	Per mensem.	Per annum.
	£ s. d.	£ s. d.	£ s. d.
Colonel as Colonel	0 12 0	..	..
Major as Major	0 5 6	..	..
A Chaplaine	0 6 8	..	..
Chyrurgion, iiij*s.*, and one horse to carry his chest ..	0 6 0	..	..
Total	1 10 2	42 4 8	551 12 8

THE COLONELL'S TROOPE.

	Per diem.	Per mensem.	Per annum.
	£ s. d.	£ s. d.	£ s. d.
Colonel as Captains, x*s.*, and two horses, each at ij*s.* ..	0 14 0	..	..
Lieutenant, vj*s.*, and two horses, each at ij*s.*	0 10 0	..	..
Cornett, v*s.*, and two horses, each at ij*s.*	0 9 0	..	..
Quarter-Master, iiij*s.*, and one horse, ij*s.*	0 6 0	..	..
Two trumpeters, each at ij*s.* viij*d.*	0 5 4	..	..
Three corporalls, each at ij*s.* per diem..	0 9 0	..	..
100 souldiers, each at ij*s.* vj*d.* per diem	12 10 0	..	..
Totall	15 3 4	429 13 4	5,620 13 4

ROYAL REGIMENT OF HORSE—THE MAJOR'S TROOPE.

	Per diem.	Per mensem.	Per annum.
	£ s. d.	£ s. d.	£ s. d.
Major as Captaine, x*s.*, and two horses, each at ij*s.* ..	0 14 0	..	..
Lieutenant, vj*s.*, and two horses, each at ij*s.*	0 10 0	..	..
Cornett, v*s.*, and two horses, each at ij*s.*	0 9 0	..	..
Quarter-Master, iiij*s.*, and one horse, ij*s.*	0 6 0	..	..
Two trumpeters, each at ij*s.* viij*d.*	0 5 4	..	..
Three corporalls, each at ij*s.* per diem	0 9 0	..	..
100 souldiers, each at ij*s.* vj*d.* per diem	12 10 0	..	..
Totall	15 3 4	429 17 4	5,520 13 4

The pay of fower troopes more to complete a regiment of Horse at the same rate and numbers as are mentioned in the Major's troope, amounting to	60 13 4	1,698 17 4	22,082 13 4
The pay of the whole regiment of horse is	92 10 2	2,590 8 8	33,675 12 8

FIELD and Staff Officers of a Regiment of Foot, consisting of 10 Companies, and each Company contayning 100 souldiers each, besides Officers, as follows:—

	Per diem.			Per mensem.			Per annum.		
	£	s.	d.	£	s.	d.	£	s.	d.
Colonell as Colonell	0	12	0	..			..		
Lieut.-Colonell as Lieut.-Colonell	0	7	0	..			..		
Major as Major	0	5	0	..			..		
One Chaplaine	0	6	8	..			..		
A Chyrurgion, iiijs., and one mate, ijs. vjd.	0	6	6	..			..		
Quarter-Master and Marshall, to be executed by one person	0	4	0	..			..		
Totall	2	1	2	57	12	8	744	4	8

A COMPANY OF FOOT.

	Per diem.			Per mensem.			Per annum.		
	£	s.	d.	£	s.	d.	£	s.	d.
Captaine	0	8	0	..			..		
Lieutenant	0	4	0	..			..		
Ensigne	0	3	0	..			..		
Two Sargeants, each at is. vjd. per diem	0	3	0	..			..		
One drummer	0	1	0	..			..		
Three corporals, at is. per diem each	0	3	0	..			..		
100 souldiers, each at xd. per diem, whilst they quarter in London, but to have but viijd. if they remove*	4	3	4	..			..		
Totall	55	5	4	147	9	4	1,902	1	4

* In 1671, the pay of the soldiers of the Foot Guards, whilst in out-quarters at Rochester was reduced to 8d. per diem, the same as the Line, until they returned to duty about "the Roya Person." This continued till the Revolution, when the pay of the Foot Guards was fixed at 10d per diem wherever stationed.

GENERAL OFFICERS.

	Per diem.			Per mensem.			Per annum.		
	£	s.	d.	£	s.	d.	£	s.	d.
Comary. Generall of the Musters with one Clerk and fower Deputies	1	12	6	45	10	0	591	10	0
A Paymaster to the Army	1	0	0	28	0	0	365	0	0
Judge Advocate to the Army at viijs. per diem, and one Clerk at ijs. vjd.	0	10	6	14	14	0	190	2	0
Secretary at War, att	0	5	0	7	0	0	91	0	0
Totall	95	8	0	..			..		

	£	s.	d.
Establishment of the Forces to be raised for the safety of His Majesty's person and Government. The yearly charge is	118,528	18	8
The yearly charge of the Garrisons that are to be kept in England	67,316	15	6
In all	185,845	14	2

"The Garrisons of Dunkirk, or the Garrisons in Scotland, are not herein included."

Then follows another document of a similar character, endorsed "Establishment to be mended." It gives—

The three troops of Guards.

The Field and Staff Officers of a Regiment of Horse, consisting of eight troops, viz.: one of 80 soldiers besides Officers to His Majesty's Troop, and seven other troops of 60.

A Regiment of Foot, consisting of 1,200 soldiers, besides Officers, to be divided into 12 companies.

Field and Staff Officers of His Grace the Duke of Albemarle, His Regiment of Foot, consisting of 1,000 men, besides Officers.

There is also a third list, with the sign manual, "Charles, R.," headed—

"An Establishment for the new rais'd forces to begin xxvi. Jan., 1660."

The items the same as in the preceding ones. At foot—

"Our Will and Pleasure is that the several Officers afternamed be added to this Establishment :—

"An Adjutant to Our Regiment of Foot, at iiij*s.* per diem.
"An Adjutant to Our Grall.'s Regt. of Foot, at iiij*s.* per diem.
"One Quarter-master to Our Regt. of Horse, at v*s.* „
"One kettle-drummer for Our Regt. of Horse, at ij*s.* per diem."

ANNEX 3.

EXTRACT from the Establishment of the Forces Warrant, 1679.

CHARLES R.

Wee having by Our Order in Councell bearing date the Tenth day of June, 1679, for the reasons therein mentioned, directed the Levying and Raising of Severall Forces who are at the humble desire of Our Councell of Our Kingdome of Scotland to be imployed for assisting Our Loyall Subjects of Our said Kingdome of Scotland in the Suppressing of the Rebellion there, Wee have thought fit to make and passe and do hereby make and passe the following Establishment of Forces for that Service whose pay respectively is to Commence and be according to such severall Musters as shall be from time to time respectively taken of them or any part or parts of them. And is to continue for the space of One Lunary Month and for so much more time as the said Occasion shall require the same and no longer.

Given at Our Court, at Whitehall, the Eleventh day of June, 1679.

ONE REGIMENT OF FOOT, CONSISTING OF 16 COMPANIES.

		Per diem.			Per mensem.		
	Field and Staff Officers.	£	*s.*	*d.*	£	*s.*	*d.*
One Regiment of Foot consisting of 1,600 souldiers besides Officers.	Colonel as Colonel	0	12	0	16	16	0
	Lieut.-Colonel as Lieut.-Colonel	0	7	0	9	16	0
	Major as Major	0	5	0	7	0	0
	Chaplaine	0	6	8	9	6	8
	Chyrurgeon	0	6	8	9	6	8
	Chyrurgeon's mate	0	2	6	3	10	0
	Adjutant	0	4	0	5	12	0
	Quarter-master and Marshal to be executed by one person	0	4	0	5	12	0
		2	7	10	66	19	4
	The Colonel's Company.						
One Regiment of Foot consisting of 1,600 souldiers besides Officers—*cont.*	Colonel as Captaine	0	8	0	11	4	0
	One Lieutenant	0	4	0	5	12	0
	Ensigne	0	3	0	4	4	0
	Three serjeants, each at 8*d.*	0	4	6	6	6	0
	Three corporals, each at 12*d.*	0	3	0	4	4	0
	Two drummers, each at 12*d.*	0	2	0	2	16	0
	One hundred private soldiers, each at 8*d.*	3	6	8	93	6	8
	Total for the Colonel's Company	4	11	2	127	12	8
	The Pay of 15 Companies more to compleat this Regiment at rates and numbers above expressed amounts to	68	7	6	1,914	10	0
	Total for the Regiment	75	6	6	2,109	2	8

ANNEX 4.

FIRST Warrant, dated 31st December, 1679, by which Poundage was deducted from the Pay of Forces.

CHARLES R.

Whereas, by agreement betwixt the Officers of Guards and Garrisons and Sir Stephen Fox, Knt., Paymaster-General of Our Forces, there hath been for eighteen years past a deduction of twelve pence out of every twenty shillings drawn from the pay of all Our said Forces, to enable the said Paymaster to advance their pay by weekly subsistence, and within a short time after the end of every muster to complete the full pay thereof, both to Officers and soldiers, which said payment by way of advance Our Paymaster hath declared unto Us he can no longer carry on by reason of the present difficulties on Our revenue; and We, taking into consideration the absolute necessity of the constant and steady payment of Our said Forces, have appointed Our Commissioners of Our Treasury to take care thereof, which that they may do in the same manner and method which usually hath been observed by Our said Paymaster, We do direct that the same deduction of twelve pence out of every twenty shillings shall be drawn out of the pay of Our said Forces, whereof one-third shall be applied for the Exchequer fees and the charges of the office of Paymaster, and the other two-thirds shall be applied to our own use in lessening the establishment of Our Forces; and that Our Forces may have no reason to complain of dilatory payments, Our express Will and Pleasure is that the Paymaster of Our Forces for the time being shall pay weekly subsistence and complete the payment of musters in manner following:—

s.	*d.*			
4	0	a-week to a	private soldier	Of Our regiment of Guards, under the command of Colonel Russell and the Earl of Craven.
5	0	„	drummer or corporal ..	
7	0	„	serjeant	
10	6	„	Ensign if desired ..	
14	0	„	Lieutenant if desired ..	

200*l.* a-week to each troop of Guards.
300*l.* „ „ the regiment of Horse.

s.	*d.*			
3	6	a-week to a	private soldier	Of our other regiments of Foot, Garrisons and Forces.
4	6	„	drummer or corporal ..	
6	0	„	serjeant	
10	6	„	Ensign	
14	0	„	Lieutenant	

And that all off-reckonings and Officers' pay, according to the Establishment and Muster Rolls, be completely paid off and cleared before the end of the succeeding muster, and that all General Officers, Reformed Officers, and pensioners be paid quarterly, with that care that one quarter be still paid before the second quarter becomes due. For the doing whereof this shall be your Warrant.

Given at Our Court at Whitehall, 31st day of December in the thirty-first Year of Our Reign 1679.

By His Majesty's Command,

(Signed) L. HYDE. SUNDERLAND. J. EARLE. GODOLPHIN.

ANNEX 5.

EXTRACT from the "Arrangements for Receipt and Payment of Monies and Grant of Portion of the Poundage from the Forces by Letteres of Privy Seal," 1683.

* * * * *

"And we having formerly given command that the Paymaster of Our Guards and Garrisons should make a deduction of twelve pence out of every twenty shillings that should be paid by him to Our said Forces, and that one-third thereof should be apply'd for Exchequer fees, and to bear the charge of his office without account; we have alsoe thought fitt that another third of the said deduction of twelve pence per pound shall be apply'd for the use of the said Hospitall" (*i.e., Chelsea Hospital*) "from the one-and-thirtieth of December, 1680, which third part for the yeare ended the one-and-thirtieth December, 1681, amounted to the sume of 3,333*l.* 6*s.* 8*d.*, and for the yeare ended the one-and-thirtieth December, 1682, to the like sume; all which said sumes hitherto received or reckoned as aforesaid for the said use do amount to 17,012*l.* 14*s.* 7*d.*

* * * * *

"Given under Our Privy Seal at Our Palace of Westminster, the seventeenth day of May, in the five-and-thirtieth yeare of our Reigne."

ANNEX 6.

EXTRACT from the "Establishment of the Forces" Warrant, 1684.

CHARLES R.

Our Will and Pleasure is that this Establishment of Our Guards, Garrisons, and Land Forces, within Our Kingdom of England, Dominion of Wales, and Town of Berwick-upon-Tweed, and the Islands thereunto belonging And of all other Officers and Charges therein expressed do commence the First day of January, 1683–4, in the Five and Thirtieth Year of Our Reign And that no New Charge be added thereunto without being First communicated to the Commissioners of Our Treasury.

CHARLES R.

An Establishment of His Majesty's Guards, Garrisons and Land Forces, within the Kingdom of England, Dominion of Wales, and Town of Berwick-upon-Tweed, and the Islands thereunto belonging, with their full Pay and Entertainment, to commence the First day of January, 1683–4.

* * * * *

HIS MAJESTY'S SCOTCH REGIMENT OF FOOT.

		Per diem.			Per annum.		
	Field and Staff Officers.	£	*s.*	*d.*	£	*s.*	*d.*
The Scots Regiment of Foot, consisting of 1,050 soldiers, in 21 companies of 50 in each company, besides Officers.	Colonel as Colonel	0	12	0	219	0	0
	Lieut.-Colonel as Lieut.-Colonel	0	7	0	127	15	0
	Major as Major	0	5	0	91	5	0
	Chaplain	0	6	8	121	13	4
	Adjutant	0	4	0	73	0	0
	Quartermaster	0	4	0	73	0	0
	Chirurgeon	0	4	0	73	0	0
	Chirurgeon's mate	0	2	6	45	12	6
	Drum-Major	0	2	0	36	10	0
	One Piper to ye Colonel's Company	0	1	0	18	5	0
		2	8	2	879	0	10
	One Company.						
	Captain	0	8	0	146	0	0
	Two Lieutenants, 4*s.* each	0	8	0	146	0	0
	Ensign	0	3	0	54	15	0
	Three serjeants, at 18*d.* each	0	4	6	82	2	6
	Three corporals, at 12*d.* each	0	3	0	54	15	0
	Two drummers, at 12*d.* each	0	2	0	36	10	0
	Fifty private soldiers, at 8*d.* each	1	13	4	608	6	8
		3	1	10	1,128	9	2
	The Pay of 19 Companies more at ye same rates and numbers with the Company above mentioned	58	14	10	21,440	14	2
	One Company of Granadiers belonging to ye Regiment.						
The Scots Regiment of Foot, consisting of 1,050 soldiers, in 21 companies of 50 in each company, besides Officers—*cont.*	Captain	0	8	0	146	0	0
	Two Lieutenants, at 4*s.* each	0	8	0	146	0	0
	Three serjeants, at 18*d.* each	0	4	6	82	2	6
	Three corporals, at 12*d.* each	0	3	0	54	15	0
	Two drummers, at 12*d.* each	0	2	0	36	10	8
	Fifty Granadiers, at 8*d.* each	1	13	4	608	6	8
		2	18	10	1,073	14	2
	Totall of ye Regiment with ye Granadiers amounts to	67	3	8	24,521	18	4

Memorandum.—That as any of ye Lieutenants in ye Scotch Regiment shall dye or be displaced, their number be reduced to one Lieutenant only in each company of this Regiment.

And that as ye serjeants shall die or be displaced, they be in the same manner reduced to two in each company.

THE REGULATION of the Weekly Subsistance for the Forces and Guarisons and for compleating the Musters is to be in manner following:—

To be Paid—

£	s.	d.		
0	4	0	a-week to a Private Soldier	His Majesty's Regiment of Foot Guards.
0	5	0	„ „ Drummer or Corporal	
0	7	0	„ „ Serjeant	
0	10	6	an Ensign	
0	14	0	a-week to a Lieutenant	
200	0	0	a-week to each Troop of Guards.	
53	0	0	„ „ Troop of Grenadiers.	
30	0	0	„ „ Troop of Ye Regiment of Horse.	
25	0	0	„ „ Troop of Ye Regiment of Dragoons.	
0	3	6	a-week to a Private Soldier	Of the other Regi- of Foot, Garri- sons and Forces.
0	4	6	„ „ Drummer or Corporal	
0	6	0	„ „ Serjeant	
0	10	6	„ „ Ensign	
0	14	0	„ „ Lieutenant	

And all off-Reckonings and Pay of Ye Severall Officers are to be compleately satisfied and cleared according to the Establishment and Muster Rolls before Ye end of the succeeding Musters, and all General Officers, Reformed Officers and Pensioners be Quarterly paid, so ye one Quarter be still paid before the second becomes due.

CHARLES R.

Whereas by Agreement, on August, 1662, betwixt the Officers of Our Guards and Garrisons and Sir Stephen Fox, then Paymaster-General of Our Forces, there hath been a deduction of Twelve Pence out of every Twenty Shillings drawn from the Pay of all Our said Forces, to enable the said Paymaster to advance their Pay by Weekly Subsistance, and within a short time after the end of every Muster to compleat the full Pay thereof both to Officers and Soldiers, which Agreement hath proved of great advantage to Our Service in the Constant Payment of our said Forces, and hath since been humbly resigned to us by the said Sir Stephen Fox with the deduction thereunto belonging, And we, thinking it absolutely necessary that Our Forces be constantly paid by way of advance as they have hitherto been, and having referred it to the care of the Commissioners of Our Treasury to see it punctually observed, We do hereby direct, that the same deduction of Twelve Pence out of every Twenty Shillings shall be as formerly drawn out of the Pay of our said Forces, whereof One-third shall be applied for Exchequer Fees and to the Paymaster of Our Forces for the time being, and the other Two-thirds shall remain in the said Paymaster's hands, your Accompt, to be disposed either towards the Erecting, Building, and Maintaining Our Royal Hospital at Chelsea for Aged, Maimed and Infirm Land Soldiers, or towards the payment of the Establishment of Our Forces as We shall from time to time direct by the Commissioners of Our Treasury, who are hereby appointed to take and examine the Accounts of the said Building and of all Monys expended towards the said Hospital, and the said Paymaster is hereby authorized and directed to apply out of the said deduction what is necessary for the said Hospital for Three Years, to commence from the end of December, 1682, and to be accomptable for the same to the Commissioners of Our Treasury, so as what shall be undisposed of towards the use of the said Hospital be applied to the lessening the charge upon the establishment of Our said Forces.

Given at Our Court at New Markett, the 17th day of March, 1683-4, in the Thirty-sixth Year of Our Reign.

By His Majesty's Command.

ANNEX 7.

WARRANT deducting One Day's Pay in each Year from every Officer and Soldier in aid of the building of Chelsea Hospital.

CHARLES R.

Having out of our Royal disposition towards the relief of old maimed soldiers, thought fit to erect an hospital for their support, and being graciously inclined by all fitting means, to direct a further supply towards the perfecting and maintenance thereof, Our Will and Pleasure is that One Day's Pay be drawn and deducted from Our Guards and Garrisons every year, and two days every Leap Year, towards the building of Our Royal Hospital, and maintenance of such Soldiers as, having served Us by land, shall be provided for therein, and of these Our directions the Paymaster and Commissary-General of Our Forces, and all other persons whom it may concern, are to take notice and govern themselves accordingly, for which this shall be their sufficient Warrant.

Given at Our Court at Windsor, the 17th day of June, 1684, in the thirty-sixth Year of Our Reign.

By His Majesty's Command.

ANNEX 8.

JAMES R.

For the better preventing all complaints that may be made touching any Debts that shall be hereafter contracted by private soldiers of Foot within Our Pay and Entertainment, We have thought fit to hereby declare Our Royal Pleasure to all persons whom it may concern within our garrisons or elsewhere that no private soldier of any Regiment or Company of Foot be trusted on any account or pretence whatsoever in their quarters: and to the end every private Foot soldier may be enabled duly and constantly to discharge his quarters, and to pay for what shall be necessary for him, We do hereby further direct and require every respective Captain or Officer in Chief with any Company of Foot to pay and satisfy unto each private soldier under their command three shillings a-week at two equal payments to be made at the beginning and middle of each week as subsistence money without any deduction whatsoever; and that they do likewise account every two months with each soldier for 6*d.* per week more allowed by us for the providing such necessaries for each soldier, to which the off-reckonings or residue of their pay hath not formerly been liable. And we do likewise hereby order the said off-reckonings to be employed by the Colonels of each respective regiment for the clothing and poundage and satisfy all other remaining expenses, for which a due account is likewise to be made unto each soldier at the time of every clothing, it being nevertheless Our Pleasure that the Officers of Our Regiments of Foot Guards do pay by advance four shillings per week, and the Officers of Our Royal Regiment of Fusiliers three shillings and sixpence per week allowed by Us to each private soldier in the respective regiments for their subsistence, and do also account with the soldiers under their command for the remainder of their pay as above mentioned. And We do hereby strictly charge and command all Governors, Lieutenant-Governors and Commanders-in-Chief of Our Garrison or of any Regiment or Company of Foot in Our Service to take special care that these Our orders be duly observed and put in execution.

Given at Our Court at Whitehall, the 27th day of November, 1687, &c.

By His Majesty's Command,
W. B.

ANNEX 9.

(Extracted from Journals of the House of Commons, 9th November, 1691, Vol. 10, 1688 to 1693, p. 547.)

A LIST of what Forces His Majesty thinks necessary to maintain the next year, (1692) viz.—

	Troops and Companies.	Number.	Pay per annum. £	s.	d.
Horse.					
First Troop of Guards	1	260	21,921	5	10
Second Troop of Guards	1	260	21,985	3	4
Third Troop of Guards	1	260	21,921	5	10
Troop of Scot Guards	1	118	9,687	14	2
Royal Regiment	9	450	30,133	15	10
Sir John Lanier's	9	450	30,398	8	4
Colonel Villier's	6	300	20,634	13	4
Lord Colchester's	6	300	20,634	13	4
Colonel Godfrey's	6	300	20,634	13	4
Colonel Coye's	6	300	20,634	13	4
Colonel Langstone's	6	300	20,634	13	4
Colonel Byerlye's	6	300	20,634	13	4
Duke of Leinster's	6	300	20,634	13	4
Marquis de Ruvigny's	9	450	30,398	8	4
Colonel Woleslye's Danes	6	300	20,634	13	4
Baron Juel's	6	276	22,076	8	4
Colonel Donep's	6	276	22,076	8	4
Marquis la Forest's Dutch	6	276	22,076	8	4
Troop of Guards	1	197	16,126	4	0
Regiment of Guards	6	480	30,051	8	0
Monpouillan's	3	213	13,078	18	0
Sgravemore's	3	213	13,078	18	0
Ginckle's	3	213	13,078	18	0
Van Oyen's	3	213	13,078	18	0
Zuylestyn's	3	213	13,078	18	0
Shack's	3	213	13,078	18	0
Neivenhuise's	3	213	13,078	18	0
Boncour's	3	213	13,078	18	0
Reiddessell's	3	213	13,078	18	0
Total of Horse	131	8,070	561,640	7	4
Dragoons.					
Royal Regiment	8	480	20,926	13	4
Colonel Leveson's	6	360	15,999	3	4
Lord Fitzharding's	6	360	15,999	3	4
Sir Thomas Levingston's	6	360	15,999	3	4
Regiment, late Sir Alfred Cunningham's	8	480	20,707	13	4
Colonel Wynn's	8	480	20,707	13	4
Colonel Eppinger's	10	920	32,469	8	0
Total of Dragoons	52	3,440	142,808	18	0
Foot.					
First Regiment of Guards	28	2,240	54,016	19	2
Second Regiment of Guards	14	1,120	27,429	16	6
Regiment of Scot Guards	14	1,120	20,966	4	2
Royal Regiment	26	1,560	31,712	8	4
Regiment, late Major General Kirk's	13	780	16,145	3	4
Colonel Churchill's	13	780	16,145	3	4
Colonel Trelawyne's	13	780	16,145	3	4
Regiment of Fusiliers	13	780	16,145	3	4
Colonel Beaumont's	13	780	16,145	3	4
Colonel Stewart's	13	780	16,145	3	4
Sir John Hanmor's	13	780	16,145	3	4
Earl of Bath's	13	780	16,145	3	4
Colonel Brewer's	13	780	16,145	3	4
Colonel Hasting's	13	780	16,145	3	4
Colonel Beveridge's	13	780	16,145	3	4
Cir James Leslye's	13	780	16,145	3	4
Colonel Hale's	13	780	16,145	3	4
Colonel O'Farrell's	13	780	16,145	3	4

	Troops and Companies.	Number.	Pay per annum. £	s.	d.
Foot—cont.					
Sir David Coljear's	13	780	16,145	3	4
Colonel Fitzpatrick's	13	780	16,145	3	4
Colonel Hodges's	13	780	16,145	3	4
Earl of Monmouth's	13	780	16,145	3	4
Colonel Erle's, late Luttrell's	13	780	16,145	3	4
Colonel Fouke's	13	780	16,145	3	4
Colonel Hamilton's	13	780	16,145	3	4
Sir Geo. St. George's	13	780	16,145	3	4
Earl of Leven's	13	780	16,145	3	4
Earl of Meathe's	13	780	16,145	3	4
Duke of Bolton's Hampshire	13	780	16,145	3	4
Duke of Bolton's North.	13	780	16,145	3	4
Sir Henry Bellasy's	13	780	16,145	3	4
Lord Castleton's	13	780	16,145	3	4
Regiment, late Colonel Herbert's	13	780	16,145	3	4
Regiment, late Lieutenant-General Douglas's	13	780	16,145	3	4
Regiment, late Lord Lisburne's	13	780	16,145	3	4
Colonel Vennevs's	13	780	16,145	3	4
Earl of Drogheda's	13	780	16,145	3	4
Colonel Erle's	13	780	16,145	3	4
Colonel la Melonier's	13	780	16,145	3	4
Colonel du Cambou's	13	780	16,145	3	4
Colonel Belcastell's	13	780	16,145	3	4
Colonel Tiffin's	13	780	16,145	3	4
Lord George Hamilton's	13	780	16,145	3	4
Colonel St. Johns's	13	780	16,145	3	4
Earl of Angus's	13	780	16,145	3	4
Major-General Mackaye's	13	780	16,145	3	4
Sir Charles Graham's	13	780	16,145	3	4
Colonel Landev's	13	780	16,145	3	4
Upnor Company	1	50	803	16	4
Company of Miners	1	50	1,733	15	4
Company of Fusiliers	1	100	1,727	13	4
New York Companies	2	120	2,354	5	0
Company in Leeward Islands, Danes	1	60	1,177	2	6
Battalion of Guards	7	700	14,207	12	6
Queen's Battalion	7	700	14,171	2	6
Prince Frederick's Battalion	6	600	12,288	6	8
Prince Christian's Battalion	6	600	12,142	6	8
Prince George's Battalion	6	600	11,978	1	8
The Zealand Battalion	6	600	12,142	6	8
The Jutland Battalion	6	600	11,978	1	8
The Funish Battalion, Dutch	6	600	11,978	1	8
Regiment of Guards	27	2,634	56,851	13	6
Prince of Darmstadt's	12	840	15,097	0	0
Colonel Lloyd's	12	840	15,097	0	0
Lord Cutz's	12	840	15,097	0	0
Count Nassau's	12	840	15,171	8	0
Prince of Brandenburg's	12	840	15,171	8	0
Colonel Groben's	12	140	15,171	8	0
Total of Foot	809	53,414	1,101,222	9	10
Total of Horse, Dragoons and Foot	992	64,924	1,805,671	15	2
To which is to be added, the same being computed at a moderate rate—					
For General Officers, Garrisons, Train Hospitals and Contingencies	..	..	350,000	0	0
For the hire of Transport ships, and other charges of Transportation	..	..	100,000	0	0
And then the total charge of the Land Forces for the ensuing year will be	..	..	2,255,671	15	2

ANNEX 10.

EXTRACT from "A particular State of the Pay allowed by Establishment to each Regiment, Troop, and Company, in their Majestys' Service, in the year 1695.

Officers.	Non-commissioned officers.	Privates.	Servants.	The Royall Regiment of Fuzileers.	Personal pay per annum of each Officer with servants and each private man.	Pay per annum.
					£ *s.* *d.*	£ *s.* *d.*
1	..	6	6	Col., 12*s.*; three servants at 8*d.*; as Captain, 8*s.*; three servants at 8*d.*	438 0 0	438 0 0
1	..	3	3	Lieut.-Col., 7*s.*; as Captain, 8*s.*; three servants at 8*d.*	310 5 0	310 5 0
1	..	3	3	Major, 5*s.*; as Captain, 8*s.*; three servants at 8*d.*	273 15 0	273 15 0
1	..	..	..	Chaplain, 6*s.* 8*d.*	121 13 4	121 13 4
1	..	..	..	Adjutant, 4*s.*	73 0 0	73 0 0
1	..	..	..	Chyrurgeon, 4*s.*	73 0 0	73 0 0
1	..	..	..	Chyrurgeon's mate, 2*s.* 6*d.*	45 12 6	45 12 6
1	..	1	1	Quarter-Master, 4*s.*; one servant, 8*d.*	85 3 4	85 3 4
2	..	..	..	Gunsmith and his man, together, 5*s.*	91 5 0	91 5 0
10	..	30	30	Captains more, each, 8*s.*, and three servants, 8*d.*	182 10 0	1,825 0 0
26	..	26	26	Lieutenants, each, 4*s.*, and one servant, 8*d.*	85 3 4	2,214 6 8
..	39	..	..	Serjeants „ 18*d.*	27 7 6	1,067 12 6
..	39	..	..	Corporals „ 12*d.*	18 5 0	711 15 0
..	26	..	..	Drummers „ 12*d.*	18 5 0	474 10 0
..	..	711	..	Private men „ 8*d.*	12 3 4	8,650 10 0
46	108	780	69			16,455 8 4

ANNEX 11.

EXTRACT from "An Abstract of the Amount of Off-reckonings for the Forces on the English Establishment this present year 1695. Shewing in distinct columns, first, the full off-reckonings of each regiment, troop, &c.; secondly, the deduction for poundage; thirdly, the deduction for one day's pay per annum for The Royall Hospital at Chelsea; fourthly, what is allowed to the Officers for the off-reckonings of their servants; fifthly, the allowance of 2*d.* in the pound for agency; and sixthly, the neat off-reckonings set apart for ye contractors for clothing. The No. in ye margin directing to the particulars of each regiment, viz.:—"

THE ROYALL REGIMENT OF FUZILEERS.

	£	*s.*	*d.*
To the full off-reckonings of 39 serjeants at 6*d.*, 39 corporals and 26 drummers at 4*d.*, and 780 men at 2*d.* each per diem, is for 365 days..	3,123	15	10
Whereof, poundage of their full pay, being 11,743*l.* 17*s.* 6*d.*,* is	587	3	10½
One day's pay for the Hospitall	32	3	6
	619	7	4½
Remains to be issued to the agent	2,504	8	5½
Which he is to apply as follows:—			
The off-reckonings of 69 servants at 2*d.* each per day, for 365 days, is	209	17	6
Deduct poundage of their full pay, being 839*l.* 10*s.*	41	19	6
One day's pay for the Hospitall	2	6	0
Agency on 839*l.* 10*s.* at 2*d.* per £	6	19	11
	51	5	5
Remains to the Officers for their servants	158	12	1
To the agent for agency of 11,743*l.* 17*s.* 6*d.* at 2*d.* per £ ..	97	17	3¾
To the contractors for cloathing	2,247	19	0¾
	2,504	8	5½

* This amount is arrived at as follows, *see* Annex 10 :—

	£	*s.*	*d.*
39 Serjeants at 18*d.*..	1,067	12	6
39 Corporals, 26 Drummers at 12*d.*	711	15	0
	474	10	0
711 Privates, 69 Privates as servants at 8*d.*	8,650	10	0
	839	10	0
	11,743	17	6

ANNEX 12.

EXTRACT from Letter of the Secretary at War to Viscount Melbourne, dated War Office 22nd March, 1834.

"Sir Hussey Vivian urges the Irish soldiers claim to Kilmainham upon the ground that the Hospital "was built out of money stopped from the pay of the Irish Army, whilst that Army was paid from a Treasury separate from that of England;" in other words, that the building was erected and maintained out of the old deductions of poundage and hospital money.

"As this argument was used in the House of Commons, and will in all probability be repeated in future discussions, and as it has the effect, if uncontradicted, of creating an impression that the Irish soldier would be unfairly dealt with by the reduction of Kilmainham, the following explanation may be required on that subject:—

"None of the Irish records being in this country, I have not the means of ascertaining the precise source from which the deduction of poundage from the pay of the Irish Army originated; but it may be assumed to have been similar, both in its origin and application, to the poundage and Hospital money raised in Great Britain.

"Previously to 1683, Warrants for paying the troops were only issued to the Paymaster-General after monthly musters, in most cases for four musters, and then only some months after the musters had taken place. The pay of the Army was thus always issued by the Paymaster-General in arrear.

"To remedy this inconvenience, a private agreement was entered into, in 1662, between the then Paymaster-General, Sir Stephen Fox, and the Officers of the Army, by which, in consideration of a stoppage of 1*s.* in the pound, the Paymaster-General undertook to issue to the Officers and soldiers their subsistence weekly, and to issue the remainder of the full pay (that is, the arrears of the Officers and the off-reckonings of the soldiers, or the part applicable to their clothing and agency) within a short time after the end of every muster. An agreement similar to that with Sir Stephen Fox in England appears to have been entered into with Messrs. Robert and William Bridges in Ireland, by which the same allowance of 1*s.* in the pound was made to them.

"In 1683–84 the Paymaster-General surrendered this agreement to the Crown. A Warrant published on the 17th March in that year directed that the pay should be thenceforward issued in advance, as it had hitherto been by Sir Stephen Fox, and that the deduction of 1*s.* in the pound should continue and be applied towards building and maintaining Chelsea Hospital, the balance to go in diminution of the charge for the forces.

"It was subsequently directed that two-thirds of this fund was to be applied to Chelsea, and one-third to Exchequer fees and other expenses.

"A further deduction was also directed of one day's pay in the year from each Officer and soldier, to be applied wholly to the building and maintenance of Chelsea Hospital.

"It is thus clearly shown that the principal deduction (the poundage) was made for the earlier issue of pay (indeed, for many years the Warrants authorizing it say, "in consideration of the weekly payment by the way of advance for their subsistence") and that the day's pay, called Hospital money, was alone originally applicable as a deduction for Chelsea Hospital.

"But it is remarkable that the privates and non-commissioned officers of the Army did not, in reality, contribute anything, and were in no respect whatever affected by these deductions.

"The gross or full pay of the soldier was divided into subsistence and off-reckonings. The subsistence was the man's personal pay, and was all over which he had control; the off-reckoning was the portion of his full pay set apart, and allowed to the Colonel for providing the clothing and accoutrements of his men; and, after paying 2*d.* in the pound to the agent, the balance was the Colonel's admitted profit. The two deductions for poundage and Hospital money were not made from the subsistence, or the soldier's portion of his gross pay, but from the off-reckoning; thus the contributions to the Hospital were, in reality, taken from the Colonel's clothing profit, and not from the pay of the soldier, who received, as before, his net subsistence, viz., 6*d.* a-day in the Infantry.

"From the year 1771 the deductions from the gross pay of the men were abandoned by the Crown and given to the soldier, under the name of "necessary money," the Colonel still continuing to receive his net off-reckoning. The Officers of the Army suffered these deductions until 1797, when they were wholly abolished. The Act of 1783 gave a legislative sanction to the discontinuance of the deductions from the gross pay of the men.

"The principal stoppage was originally made on the ground that the Officers and men should receive their personal pay when due. The condition has been faithfully complied with, and the consideration given for that earlier issue has been granted by the Crown as a boon to the soldier, although, as has been shown, the soldier did not originally contribute it.

"If, however, it were to be fully admitted that Kilmainham Hospital was built and maintained out of money stopped from the pay of the Army, that circumstance would not give men who enlisted since 1771 an unalienable right to the perpetual maintenance of an institution to which, at any rate, no contribution has been made by the present Army."

ANNEX 13.

EXTRACT from the "Early History of the Royal Hospital at Chelsea." (Her Majesty's Stationery Office publication, 1872.)

Page 15. "When Sir Stephen Fox became Paymaster (? Paymaster-General), in March, 1661, he found the custom prevailed of issuing pay to the troops long after it became due. To remedy the inconvenience caused by the delay, he made private arrangements with the troops the following year, under which they should receive a portion of their pay, under the head of "Subsistence," every week, and the balance after the next muster. In return for this accommodation he became entitled to deduct for his own use 12*d.* out of every pound issued. To enable him to meet these engagements he raised money on his own private credit in account with various London bankers, and the arrangement is thus described in Pepy's Diary, 16th January, 1666–67:—

"'Sir Stephen Fox told me his whole mystery in the business of the interest he pays as treasurer for the Army. They give him 12*d.* per pound quite through the Army, with the condition to be paid weekly. This he undertakes for his own private credit, and to be paid by the King at the end of every four months; then for all the time he stays longer my Lord Treasurer allows him by agreement 8 per cent. per annum for the forbearance. So that, in fine, he hath about 12 per cent. from the King and Army for fifteen or sixteen months interest, out of which he gains soundly, his expenses being about 130,000*l.* per annum.'"

ANNEX 14.

TABLE showing the Pay and Allowances of Privates of Infantry from 1660 to 24th December, 1770.

	1660–61.			1662–78.			1679–82.			1683.			1684–1770.		
	Day.	Week.	Yearly.	Day.	Week.	Yearly.	Day.	Week.	Yearly.	Day.	Week.	Yearly.	Day.	Week.	Yearly.
	d.	*s. d.*	£ *s. d.*	*d.*	*s. d.*	£ *s. d.*	*d.*	*s. d.*	£ *s. d.*	*d.*	*s. d.*	£ *s. d.*	*d.*	*s. d.*	£ *s. d.*
Gross pay	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4
Allowance in aid of necessaries	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total gross pay and allowances	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4	8	4 8	12 3 4
Deduct "off-reckonings," viz.—															
Poundage at 5 per cent. on the gross pay distributed as follows:—															
The whole to the Paymaster-General	..	..	..	..	..	0 12 2	..	..	..	..	..	..	..	..	..
One-third for exchequer fees and the office of the Paymaster-General	..	..	..	..	..	..	..	..	0 4 0·666	..	..	0 4 0·666	..	..	0 4 0·666
Two-thirds in aid of the cost of the Army	..	..	..	..	..	..	..	..	0 8 1·333	..	..	..	..	..	..
Two-thirds in aid of Chelsea Hospital or towards lessening the cost of the Army	..	..	..	..	..	..	..	..	..	..	..	0 8 1·333	..	..	0 8 1·333
"Hospital money."—One day's gross pay in aid of Chelsea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0 0 8
Agency.—2*d.* in the £ on the gross pay	..	..	0 2 $0\frac{1}{3}$	..	..	0 2 $0\frac{1}{3}$	..	..	0 2 $0\frac{1}{3}$	..	..	0 2 $0\frac{1}{3}$	..	..	0 2 $0\frac{1}{3}$
Net off-reckonings for the Colonel to enable him to provide clothing	..	..	2 18 $9\frac{2}{3}$	..	..	2 6 $7\frac{2}{3}$	..	..	2 6 $7\frac{2}{3}$	..	..	2 6 $7\frac{2}{3}$	..	..	2 5 $11\frac{2}{3}$
Gross off-reckonings	2	..	3 0 10	2	..	3 0 10	2	..	3 0 10	2	..	3 0 10	2	..	3 0 10
Net pay	6	..	9 2 6	6	..	9 2 6	6	..	9 2 6	6	..	9 2 6	6	..	9 2 6
Distribution of net pay—															
To the soldier for subsistence	6	3 6	9 2 6	6	3 6	9 2 6	6	3 6	9 2 6	6	3 6	9 2 6	..	3 0	7 16 0*
To the Captain for washing, necessaries, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	0 6	1 6 6*
Total	6	3 6	9 2 6	6	3 6	9 2 6	6	3 6	9 2 6	6	3 6	9 2 6	..	3 6	9 2 6

* From 1687.

Appendix VIII.

History of the Deduction of Poundage of 12*d.* in the pound from Out-Pensioners.

1. Prior to 1754 the soldiers' pensions were paid annually in arrear. This system gave rise to great abuses, which were sought to be remedied by an Act of Parliament of 1754 (28 George II., cap. 1). The preamble to the Act states:—

2. "Whereas the out-pensioners of the Royal Hospital at Chelsea for the relief of maimed and worn-out soldiers are, by the present method of payment of the out-pension (namely, the payment of a year's pension only after the same is become due) exposed to sundry and great hardships and distresses, and the said out-pensioners, on their admission to the pension, necessitated to take up money for present subsistence on credit of persons called money-lenders, on terms many times oppressive and usurious, to the extreme detriment of these meritorious objects of the Royal bounty and generous provision of Parliament, and to the unwarrantable emoluments of persons who make advantage of their necessities: For the prevention of all which abuses and mischiefs, Be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, that all assignments, bargains, sales, contracts, orders, agreements, or securities whatsoever, made by any out-pensioner, for, upon, or in respect of any sum or sums of money to become due, for or on account of the out-pension of the Royal Hospital at Chelsea, to such out-pensioner who shall be admitted thereunto, from and after the twenty-fifth day of December, one thousand seven hundred and fifty-four, shall be absolutely null and void to all intents and purposes."

3. The Act directed that out-pensions should in future be paid half-yearly in advance, and an agent should be appointed for the special duty of paying the pensioners. It also enacted that the Treasurer of the Hospital "shall and may deduct one shilling in the pound from . . . . all monies . . . . issued in advance to out-pensioners of Chelsea Hospital, from and after 25th December, 1754 . . . and that after the deduction of the said sum of one shilling in the pound, the said pensions shall be paid to the persons entitled thereto without any other deduction, &c." It further enacted that the "monies so deducted shall be applied in the manner which His Majesty, &c., shall by Warrant under the Sign Manual direct."

4. It appears from the 19th Report of the Commissioners of Military Enquiry, 1812, pages 387, 388, that few such Warrants were issued in the earlier years after 1754; the Commissioners appear to have applied the funds for payment of salaries to persons employed, for the payment of out-pensioners, and for the general uses of the Hospital, without Warrant, and subsequently obtained covering Warrants. In later years Warrants were, as provided for in the Act of 1754, regularly issued for the application of these funds to the services of Chelsea Hospital. *See* Warrants of 1808 and 1841, Appendix IX.

App. X., Annex Nos. 1 and 2.

5. The Army Estimates of 1809–10 and 1810–11—copies of which are annexed to the memorandum on "unclaimed prize money"—show that 20,851*l.* 15*s.* 3*d.* and 21,567*l.* 6*s.* 4*d.* were taken in aid of the out-pension votes of those years, and similar deductions were made in previous and in subsequent years. The poundage of 1*s.* under 28 George II., cap. 1, was continued until 1833, when 3 and 4 William IV., cap. 29, reduced it from 1*s.* to 6*d.* on all pensions granted after 1st March, 1833. In 1847 the poundage on pensions was finally abolished by 10 Vict. cap. 4.

6. It seems clear that the funds resulting from this poundage were regarded, not as the personal property of pensioners, but as public funds to be used in reduction of the votes of Parliament, and for such other services as might be directed by Royal Warrant.

7. The repealing statute provided "that nothing in this or in any former Act contained shall be deemed to give any claim whatever to any person on account of poundage deducted from any pension before the passing of this Act."

War Office,
11*th July*, 1894.

Appendix IX.

Specimen Warrants applying the Poundage Deductions from Pensions to Payment of Out-Pensioners of Chelsea Hospital.

(1)

George R.

Whereas the Commissioners of our Treasury have represented unto Us, that it hath been made appear unto them by a report of the Comptrollers of the accounts of our Army, dated the 11th of May, 1808, that the sum of 30,000*l.* being part of the present amount remaining in your hands of the deduction of one shilling in the pound taken from the out-pensions on the Establishment of Chelsea Hospital, may conveniently be applied towards the Service of the present year, in aid of the Parliamentary Grant for the said Establishment. And have recommended unto us to direct the appropriation of the said sum of 30,000*l.* towards the said Service, to which we being graciously pleased to consent, Our Will and Pleasure is, and We do hereby direct, authorize and command that you do apply the said sum of 30,000*l.*, being part of the present amount remaining in your hands of the deduction of one shilling in the pound taken from the out-pensions on the Establishment of Chelsea Hospital towards the Service of the present year, in aid of the Parliamentary Grant for the said Establishment. And this shall be as well to you for causing the said sum to be applied, as to the Commissioners for auditing the public accounts and all others concerned in passing your accounts for allowing the same thereupon, a sufficient warrant.

Given at Our Court at St. James's, this 29th day of June, 1808, in the forty-eighth year of Our Reign.

By His Majesty's command,
W. BRODRICK.
WILLIAM ELIOT.
WM. STURGESS BOURNE.

To Our right, trusty and well-beloved Charles Long and Charles Henry Somerset (commonly called Lord CharlesHenry Somerset), Treasurer of Our Royal Hospital at Chelsea.

Treasurer of Chelsea Hospital to apply 30,000*l.* arising from the deduction of one shilling in the pound from the out-pensions towards the Service of the present year, in aid of the Parliamentary Grant for the said Establishment.

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(2)

VICTORIA REG.

Whereas in pursuance of Act passed in the 28th year of the Reign of King George II., and in the fourth year of the Reign of King William VI., Our late Royal Uncle, deductions are made at the rate of 1*s.* in the pound in certain cases, and of 6*d.* in the pound in other cases, from the pensions paid to the out-pensioners of Chelsea Hospital, and whereas by the said first-mentioned Act, We are empowered to apply the monies so deducted in the manner which We shall by Warrant under Our Royal Sign Manual direct, and whereas the Commissioners of Our Treasury have represented to Us that it is expedient that the monies arising from such deductions should be applied in aid of the sums granted, or to be hereafter granted by Parliament for the payment of the pensions of the out-pensioners of Chelsea Hospital.

Our Will and Pleasure is, and We do hereby direct, authorize, and require you to cause all sums of money which shall arise after the 31st day of this month of March, 1841, by the deductions of 1*s.* and of 6*d.* in the pound on payments made to out-pensioners as aforesaid, to be applied in aid of the Parliamentary Grants made, or which shall be hereafter made for the payment of such pensions.

And Our Will and Pleasure further is, and We do hereby direct, authorize, and require you to cause any monies which shall remain in your accounts in the Bank of England under the title of "The Poundage Fund Account" on the said 31st March, 1841, to be applied in aid of the Parliamentary Grant for out-pensioners for the year ending on that day. And this shall be as well to you as to the Commissioners for auditing the public accounts, and all concerned in passing your accounts for allowing the same thereupon a sufficient warrant.

Given at Our Court at Buckingham Palace, this 13th day of March, 1841, in the fourth year of Our Reign.

By Her Majesty's command,

J. PARKER.

H. TAPNELL.

G. HORSMAN.

To the Treasurer of
Our Hospital at Chelsea.

Appendix X.

MEMORANDUM on the Accumulated Balances of Unclaimed Army Prize Money.

1. The disposal of unclaimed prize money is regulated by statute.

2. The first statute on the subject of unclaimed prize money in 1805 (45 Geo. III., c. 72, sec. cxiii.) directs that it shall be paid to the Treasurer of Chelsea Hospital *for the use of the said Hospital* within six months after distribution commenced, subject to any individual establishing a claim to it within six years. The next statute in 1809 (49 Geo. III., c. 123, sec. xvi.) also provides that prize money not claimed within six years *shall be forfeited to and to the use of Chelsea Hospital.* The Act of 1811 (51 Geo. III., c. 104, sec. ii.) allowed prize money to be applied *to the use of Chelsea Hospital* before the expiration of six years, provided that the Commissioners of the Hospital retained sufficient funds in hand to meet the claims of persons entitled to prize money. Section III. of the same Act sanctioned the balances being invested in Government securities, and the dividends and interest being *applied to the general current services of the Hospital.*

Annex Nos. 1 and 2.

3. In the Army Estimates of 1809–10 and 1810–11, signed by Lord Palmerston as Secretary at War, the net charges for Chelsea *out-pensions* is given as 401,724*l.* 11*s.* 6*d.* and 415,351*l.* 0*s.* 9*d.*, respectively, and from these amounts there is deducted, as an appropriation-in-aid, sums of 100,000*l.*, and 25,000*l.*, "a proportion of prize money placed at the disposal of the Commissioners of Chelsea Hospital by certain Acts of Parliament." Some technical objection seems, however, to have been taken to this appropriation, and

the Act of 1812, 52 Geo. III., c. 132, sec. iii., which refers to these sums as having been *appropriated to the current service of Chelsea Hospital*, formally indemnifies the Commissioners and their Treasurer for having made these appropriations, and enacted that "it shall and may be lawful for the said Commissioners *at all times hereafter* by Warrant . . . . to appropriate such sums of money forming a part of the forfeited and unclaimed prize money . . . . . as they or any three or more of them may think expedient and proper to the *current services* of the said last mentioned Royal Hospital." One of the "current services" of Chelsea Hospital consisted of the payment of out-pensions and the appropriation of unclaimed prize money for such payments was therefore an appropriation "for the current purposes of the Hospital," and was distinctly sanctioned by Parliament.

The Act of 1814, 54 Geo. III., cap. 86, sec. li., contained a similar provision.

The powers of the Crown with regard to prize money are fully recognized by the statute still in force, of 1832, 2 Wm. IV., c. 53, sec. ii., which prescribes that soldiers engaged in active operations shall have such rights and interests in booty, &c., captured from the enemy, as His Majesty *shall be pleased to direct*. Sec. xlii. of this Act after repealing previous enactments as to the disposal of prize funds re-enacted that the Commissioners of Chelsea Hospital might dispose of unclaimed prize money "*as they may think expedient and proper to the general services and expenses of the said Royal Hospital or relating thereto.*"

In addition to the foregoing appropriations, Parliament, by Act of 1848, 11 and 12 Vic., cap. 103, and Act of 1854, 17 and 18 Vic., cap. 61, sanctioned the issue of 40,000*l.* in all, for the purposes of the Royal Military Asylum at Chelsea.

Various balances, amounting to 41,144*l.* 0*s.* 8*d.*, having been transferred by the Treasurer to the Exchequer in the years 1841–2 to 1852–3, a question arose as to the regularity of these last-named transfers, but the matter seems to be merely one of a technical character, and there is no question of any misappropriation of the funds. Annex 3.

WAR OFFICE,
11*th July*, 1894.

ANNEX No. 1.

ARMY ESTIMATES, 1809–10.

ESTIMATE of the Charge of the Out-pensioners of Chelsea Hospital, and of the Royal Hospital, near Kilmainham, from 25th December, 1809, to 24th December, 1810, both inclusive, being 365 days.

CHELSEA HOSPITAL.

		Charge. £	s.	d.
1,007	out-pensioners, at 5*d.* per diem each	7,657	7	11
4,818	„ 6*d.* „	43,964	5	0
2,962	„ 9*d.* „	40,542	7	6
5,225	„ 1*s.* „	95,356	5	0
9,038	out-pensioners at various rates, but upwards of 1*s.* per diem each, in consideration of their being totally disabled by blindness, or otherwise, or of their having served more than 21 years in the Infantry, or 24 years in the Cavalry	229,515	0	10
23,050		417,035	6	3
	Annuities to private gentlemen of the late 1st and 2nd Troops of Horse Guards, formerly defrayed out of the poundage on out-pensions ..	814	5	0
	£ s. d.			
	For the Collectors of Excise, for paying the out-pensions 1,784 4 0			
	For the agents, clerks, &c. 1,942 11 6			
	For the agent of out-pensioners 1,000 0 0	4,726	15	6
		422,576	6	9
	Deduct the amount of poundage on the out-pensions ..	20,851	15	3
	Net charge	401,724	11	6

In aid of which may be applied the following sums, viz.:—

	£	s.	d.		
Already provided for in the Estimates of the Land Forces, and of the Supernumerary Officers of His Majesty's Forces, for 1810	14,445	6	10		
A proportion of the unclaimed shares of prize money due to the Land Forces, and placed at the disposal of the Commissioners of Chelsea Hospital, by certain Acts of Parliament ..	100,000	0	0		
				114,445	6 10
Remains to be provided for Chelsea Hospital				287,279	4 8

ROYAL HOSPITAL NEAR KILMAINHAM.

	Irish. £	s.	d.		
Officers and soldiers on the out-pension, about.. ..	52,000	0	0		
Chelsea pensioners in the Militia in Ireland	800	0	0		
Admission and readmission during the above period ..	6,000	0	0		
Agent in Great Britain, paying pensions there ..	450	0	0		
	59,250	0	0		
Pells and poundage on the above sum ..	1,846	12	6		
	*61,096	12	6		
* Which sum of 61,096*l.* 12*s.* 6*d.*, Irish, amounts in British money to ..				56,396	17 9
Total				343,676	2 5

PALMERSTON.

WAR OFFICE,
12th February, 1810.

ANNEX No. 2.

ARMY ESTIMATES, 1810–11.

ESTIMATE of the Charge of the Out-Pensioners of Chelsea Hospital, and of the Royal Hospital, near Kilmainham, from 25th December, 1810, to 24th December, 1811, both inclusive, being 365 days.

	CHELSEA HOSPITAL.	Charge. £	s.	d.
990	out-pensioners, at 5*d.* per diem each	7,528	2	6
4,799	„ 6*d.* „	43,790	17	6
3,265	„ 9*d.* „	44,689	13	9
5,268	„ 1*s.* „	96,141	0	0
9,353	out-pensioners at various rates, but upwards of 1*s.* per diem each, in consideration of their being totally disabled by blindness or otherwise, or of their having served more than 21 years in the Infantry, or 24 years in the Cavalry	239,196	13	4
23,675		431,346	7	1

	£	s.	d.			
For the Collectors of Excise, for paying the out-pension	1,814	4	0			
For the agents, clerks, &c.	1,943	11	0			
				3,757	15	0

Charges formerly defrayed out of the poundage on out-pensions.

	£	s.	d.			
Annuities to private gentlemen of the late 1st and 2nd Troops of Horse Guards	814	5	0			
For the agent of out-pensioners	1,000	0	0			
				1,814	5	0
				436,918	7	1
Deduct the amount of poundage on the out-pensions ..				21,567	6	4
Net charge				415,351	0	9

In aid of which may be applied the following sums, viz.:—

	£	s.	d.			
Already provided for in the Estimates of the Land Forces, and of the Supernumerary Officers of His Majesty's Forces, for 1811	14,446	5	1			
A proportion of the unclaimed shares of prize money due to the Land Forces, and placed at the disposal of the Commissioners of Chelsea Hospital, by certain Acts of Parliament ..	25,000	0	0			
				39,446	5	1
Remains to be provided for Chelsea Hospital				375,904	15	8

ROYAL HOSPITAL NEAR KILMAINHAM.

		Irish. £	s.	d.
4	Officers at 50*l.* per annum..	200	0	0
4	serjeants at 10*l.* „	40	0	0
698	out-pensioners, at 4¾*d.* per diem each	5,040	6	5½
1,343	„ 6*d.* „	12,254	17	6
260	„ 9*d.* „	3,558	15	0
476	„ 1*s.* „	8,687	0	0
1,018	out-pensioners at various rates, but upwards of 1*s.* per diem, in consideration of their being totally disabled by blindness or otherwise, or of their having served more than 21 years in the Infantry, or 24 years in the Cavalry ..	27,621	16	8½
	For admissions and readmissions during the above period	6,000	0	0
	For Chelsea pensioners in the Militia in Ireland ..	800	0	0
	For the agent paying pensioners resident in Great Britain..	450	0	0
		64,654	15	8
	Pells and poundage on the above sum ..	2,015	1	6
		*66,669	17	2
* Which sum of 66,669*l.* 17*s.* 2*d.*, Irish, amounts in British money to ..				61,541	8	2
	Total			437,446	3	10

WAR OFFICE,
19*th February*, 1811.

PALMERSTON.

ANNEX No. 3.

ARMY PRIZE MONEY.

THE ACCOUNT of Army Prize Money paid over to the Commissioners of Chelsea Hospital, from the 18th January, 1809, to the 31st March, 1876; directed by the Act 2 Will. IV., c. 53, to be laid before the Houses of Parliament.

Dr.	£	*s.*	*d.*
To a deduction of 5 per cent. (made pursuant to Act 2 Will. IV, c. 53), from Prize Money, granted to the Commissioners for distribution, to meet necessary expenses, as per last return	2,325	6	11
To cash arising from Prize Money awarded to the Army, including Unclaimed Shares in the hands of agents and others, transferred to the Commissioners, or recovered by them, for distribution	1,588,329	12	5
To cash arising from dividends or interest on investments made from time to time in the Public Funds, to be afterwards realized when required to meet current demands	280,311	1	0
Balance (*see* Note I. below)	19,485	6	2
	1,890,451	6	6

Cr.	£	*s.*	*d.*	£	*s.*	*d.*
By shares paid to claimants				1,122,040	9	2
By expenses in executing Prize Acts from 18th January, 1809, to 31st March, 1876..				68,072	16	7
By sums expended on Chelsea Hospital to 1st March, 1842, in diminution of votes for in and out-pension ..	556,752	6	6			
By sums expended on the Hospital since 1st March, 1842	62,441	13	7			
By sums transferred by the Paymaster-General to the Exchequer, since the above date, in conformity with Treasury Minutes	41,144	0	8			
				660,338	0	9
By sums paid to the Commissioners of Works and Buildings, by virtue of Acts of Parliament, to purchase the site of the Royal Military Asylum, and to improve the Asylum				40,000	0	0
				1,890,451	6	6

NOTE I.—The excess of expenditure over apparent receipts, as shown in this account, arises from profit on sale of stock which had been purchased at low prices. From this source also are obtained a cash balance of 2,144*l.* 1*s.* 7*d.*, in the hands of the Treasurer on 31st March, 1876, and 75,000*l.* consols, held for the Commissioners at same date. This stock constitutes a fund sufficient to meet all anticipated claims, and the dividend thereon is, in the meantime, devoted (under the provisions of legal enactments, and with the sanction of the Treasury), to the maintenance of the Hospital grounds, and to other purposes for the benefit of the Hospital.

NOTE II.—The Chelsea Hospital Accounts Act, 1876, 39 Vict. c. 14, having repealed, from 31st March, 1876, section 40 of the Act 2 Will. IV, c. 53, which required that an account of this form and character, made up to 31st December preceding, be annually laid before Parliament, the present account, instead of being made up to 31st December, 1875, covers the whole period to 31st March, 1876, so as to include the whole of the time during which the repealed provision was in operation.

GEORGE HUTT,
Secretary to the Commissioners.

ROYAL HOSPITAL, CHELSEA,
11*th July*, 1876.

Appendix XI.

CHELSEA HOSPITAL LANDS ACT.

(38 and 39 Victoria, Chapter 118.)

COPY of Treasury Solicitor's opinion as to the powers of the Chelsea Commissioners to sell and let land under this Act.

Treasury,
20th December, 1888.

Sir,

With reference to the annexed letter from Chelsea Hospital, dated 5th December, 1888, as to the construction of Section 2 of the Chelsea Hospital Lands Act, 1875, I have the honour to report that, in my opinion, the Commissioners are not empowered by the Act, or otherwise, to sell or exchange any of the lands conveyed to them by the Commissioners of Woods under the section in question.

There is, however, nothing in the Act to prevent the Commissioners from granting beneficial leases of such lands, the rents reserved by such leases being applied "for the benefit of the Hospital and the purposes of the institution."

I have, &c.,
F. CHANCE.

The Secretary,
the Treasury.

Appendix XII.

ROYAL HOSPITAL, CHELSEA.

RETURN showing Ages of In-Pensioners on Admission and at Death, also number of Deaths in each Year, from 1st January, 1882, to 31st December, 1893.

Ages.	Admissions.	Deaths.	Year.	Number of Deaths in each year.
25 to 29	4	..	1882	49
30 to 34	7	4	1883	59
35 to 39	14	7	1884	56
40 to 44	36	9	1885	58
45 to 49	60	26	1886	71
50 to 54	85	44	1887	73
55 to 59	225	76	1888	52
60 to 64	216	111	1889	55
65 to 69	168	126	1890	60
70 to 74	103	132	1891	71
75 to 79	38	100	1892	63
80 to 84	14	61	1893	48
85 to 89	1	15	..	..
90	..	2	..	..
93	..	1	..	..
101	..	1	..	..
Totals	971	715	..	715

E. A. STUART,
Lieutenant-Governor and Secretary.

13th July, 1894.

NOTE.—Admissions in any one year fill vacancies caused by death or discharge in that year, or the one preceding.

Appendix XIII.

ROYAL HOSPITAL, CHELSEA.

RETURN showing the different Rates of Out-pension surrendered by Pensioners on admission to In-pension, from 1st January, 1882, to 31st December, 1893.

Rate of Pension in pence.	Number of Men admitted.
4	10
5	3
6	41
7	15
8	45
8½	2
9	95
9½	1
10	46
10½	15
11	61
11½	13
12	279
12½	19
13	112
13½	17
14	43
14½	16
15	30
15½	6
16	15
16½	1
17	6
17½	5
18	18
18½	3
19	3
19½	1
20	3
20½	1
21	3
21½	1
22	3
22½	3
23	2
23½	2
24	23
26	2
27	3
29	2
29½	1
35	1
Total	971

E. A. STUART,
Lieutenant-Governor and Secretary.

13*th July* 1894.

Appendix XIV.

ROYAL HOSPITAL, CHELSEA.

NAMES of In-Pensioners, now in the House, who have reverted to Out-pension and been Re-admitted. 17th July, 1894.

Names.		Regiment.	First admission.	Reverted to out-pension.	2nd admission.	Reverted to out-pension.	Last admission.
Serjeant	Batchelor, J.	70th Foot	1 Dec., 1887	1 April, 1891			1 Oct., 1892.
,,	McGregor, G.	91st ,,	1 July, 1876	1 July, 1886			1 Feb., 1891.
,,	Stredwick, H.	Royal Engineers	1 March, 1885	1 Oct., 1889			1 Aug., 1890.
Corporal	McCulloch, W.	12th Lancers	1 March, 1880	1 Aug. 1880	1 July, 1883	1 Jan., 1884	1 Oct., 1884.
1st class	Coleman, G.	98th Foot	1 April, 1878	22 Dec., 1885			28 July, 1886.
2nd class	Crawford, W.	7th ,,	1 June, 1867	1 July, 1874			1 July, 1875.
,,	Farley, M.	73rd ,,	17 April, 1872	26 June, 1874	1 Aug., 1875	1 Oct., 1877	1 Nov., 1878.
,,	Marriott, W.	84th ,,	1 July, 1870	1 July, 1872			1 March, 1873.
,,	McDermott, J.	19th ,,	1 Oct., 1870	1 July, 1879			15 Oct., 1879.
,,	Morgan, W.	60th ,,	1 July, 1866	1 Aug., 1871			1 Jan., 1872.
,,	Powell, C.	18th Hussars	1 March, 1871	9 May, 1871			18 May, 1871.
,,	Whelan, J.	101st Foot	1 May, 1871	1 April, 1872			1 April, 1879.
Drummer	Higgins, C.	75th ,,	1 Oct., 1881	1 Oct., 1882			1 Nov., 1890.
,,	Reilly, J.	62nd ,,	1 Jan., 1876	1 Feb., 1876			1 March, 1888.
No. 1 Ward	Austin, W.	6th ,,	1 Jan., 1880	1 Oct., 1883			1 July, 1889.
,, 1 ,,	Robins, G.	81st ,,	1 Aug., 1888	1 July, 1889			1 July, 1891.
,, 2 ,,	Turvey, J.	Grenadier Guards	1 April, 1879	1 March, 1885			1 April, 1891.
,, 3 ,,	Morton, A.	15th Foot	1 May, 1880	1 July, 1880			1 May, 1887.
,, 4 ,,	Herrick, J.	45th ,,	1 Oct., 1873	1 July, 1878			1 April, 1892.
,, 5 ,,	Bennett, J.	2nd ,,	3 May, 1892	1 June, 1892			1 April, 1894.
,, 5 ,,	Whitnall, R.	4th Brigade, R.A.	1 Jan., 1881	1 Oct., 1884			1 Aug., 1885.
,, 6 ,,	Morgan. W.	18th Hussars	8 May, 1878	1 April, 1886			1 July, 1890.
,, 6 ,,	Hill, J.	Depôt Brigade, R.A.	1 April, 1885	1 Aug., 1889			1 April, 1892.
,, 10 ,,	Noonan, J.	9th Foot	1 July, 1881	1 July, 1887			1 July, 1888.
,, 11 ,,	Turner, E.	97th ,,	1 Aug., 1871	1 Dec., 1874			1 Jan., 1884.
,, 14 ,,	Rickards, J.	101st ,,	1 Aug., 1879	1 Sept., 1879			1 May, 1890.
,, 15 ,,	Matthison, H.	7th Brigade, R.A.	1 Aug., 1878	1 Oct., 1880			1 March, 1884.
,, 15 ,,	Tidbury, C.	Royal Canadian Rifles	1 Oct., 1883	1 Oct., 1885			1 Oct , 1889.
,, 16 ,,	Clohesy, J.	13th Foot	1 Nov., 1877	1 April, 1878			1 Jan., 1886.

Total—29.

E. A. STUART,
Lieutenant-Governor and Secretary.

Appendix XV.

INFORMATION necessary to be furnished by an Out-Pensioner of Chelsea Hospital who wishes to become a Candidate for admission to In-Pension.

OLD FORM.

1. State your Christian and Surname, and the Regiment from which you were admitted a pensioner, the rate of your pension, and the date of your admission on the Pension List..	
2. Mention any other regiments in which you have served	
3. Have you every served abroad? if so, state where, and the period of such service..	
4. If you have served in any action, state the name of it	
5. If you have been wounded, state in what part of your body, and in what action you received the said wound	
6. If you have a wife or family, state how they will be provided for in the event of your being admitted an in-pensioner ..	
7. Have you any children or near relatives with whom you can live if not admitted to the Hospital?	
8. What is your precise address, and in what Staff district do you receive your out-pension?	
9. Do you belong to the local company?..	

10. We hereby certify that the general conduct of since he lived in this Parish, has been , and in the event of his being admitted an in-pensioner, the Parish will have no claim upon his pension.

Minister and Churchwardens of the Parish of

11. I certify that is not labouring under any degree of mental derangement, nor infected with any contagious disorder.

Note.—The Surgeon is requested to state, in addition, whether the man be physically capable of supplementing his out-pension by labour or other industry.

_____ *Surgeon.*

12. The above-mentioned has been paid his pension up to , and his character has been , and I have no reason to believe, either from enquiries made by me, or from any circumstances which have come to my knowledge, that he has exhibited symptoms of insanity, or of weakness of intellect, to such an extent as to incapacitate him from taking care of himself.

_____

Staff Officer of Pensioners,

_____ *District.*

Dated_____

N.B.—This Form is to be returned to the "Secretary of Chelsea Hospital," as directed.

Appendix XVI.

(This form to be fully completed and returned here through your Pension Paymaster.)

INFORMATION necessary to be furnished by an Out-Pensioner of Chelsea Hospital who wishes to become a Candidate for admission to In-Pension.

PRESENT FORM.

1. State the following particulars :— Your Christian and Surname, Regiment from which pensioned .. .. .. Rate of pension .. .. Date of admission .. .. Chelsea number	
2. Mention any other regiments in which you have served	
3. Have you ever served abroad? if so, state where, and the period of such service ..	
4. If you have served in any action, state the name of it	
5. If you have been wounded, state in what part of your body, and in what action you received the said wound	
6. If you have a wife or family, state how they will be provided for in the event of your being admitted an in-pensioner	
7. Have you any children or near relatives with whom you can live if not admitted to the Hospital?	
8. What is your precise address, and from what district do you receive your out-pension?	

9.

I hereby certify that the general conduct of since he lived in this Parish, has been

_____ *Parochial Clergyman.*

_____ *Address.*

Dated _____

10.

I hereby certify that, should

(The words not used to be struck out.) be admitted to In-Pension, the Parochial authorities will have no claim (*or*) will waive their claim upon his Pension.

_____

Clerk to the Guardians.

_____ { *Parish* (*or*) Union.

Dated _____

11.

MEDICAL REPORT.

(*a.*) How far is the applicant capable of supplementing his out-pension by his own labour?	
(*b.*) If not capable, what is the disability under which he suffers, and how far is it attributable to Army Service?	

I hereby certify that I have examined that he is not labouring under any degree of mental derangement, nor is he infected with any contagious disorder; and I further certify that the answers to the foregoing questions are true to the best of my knowledge and belief.

_____

_____ { Rank, if in Army Medical Department; or Professional Status.

Dated _____

12

The above-mentioned has been paid his pension up to , and his character has been ; and I have no reason to believe, either from enquiries made by me, or from any circumstances which have come to my knowledge, that he has exhibited symptoms of insanity or of weakness of intellect to such an extent as to incapacitate him from taking care of himself.

_____

Officer paying Pensioners,

_____ *District.*

Dated _____

N.B.—This form to be returned to the Secretary of Chelsea Hospital, as directed.

Appendix XVII.

RETURN of Army Pensioners now living, showing their Numbers and Ages.

Ages	Numbers.
Under 50 years	26,922
50 years and under 55	18,297
55 „ „ 60	18,392
60 „ „ 65	9,002
65 „ „ 70	5,184
70 „ and over	4,606
Total	82,403

SUMMARY.

Under 55 years of age	45,219
Over 55 „	37,184
	82,403

NOTE.—In the above return are included 8,000 Army pensioners living abroad. As there has been no time to obtain returns from abroad, it has been assumed that their ages are the same as those of the pensioners at home.

WAR OFFICE,
18*th July*, 1894.

Appendix XVIII.

NUMBER of Beds for treatment of ordinary cases in the undermentioned Hospitals at Home, together with the maximum number occupying them at any time during the five years ending 1893.

Station.	Number of beds for ordinary cases.	Maximum number in hospital on any days during last five years.	Remarks.
Chatham	236	179	The excess of sick over accommodation shows that either temporary re-appropriation of barracks must be made, that day and reading rooms must be utilized for a purpose for which they were not intended, that tents must be pitched, or that temporary overcrowding of the hospital must take place.
Colchester	208	227	
Devonport	198	316	
Dublin (Royal Infantry)	146	200	
Gosport	127	165	
London	207	249	
Netley	843	1,000	
Portsmouth	177	203	
Woolwich	484	519	

ARMY MEDICAL DEPARTMENT,
13*th July*, 1894.

Appendix XIX.

NOMINAL ROLL of the In-Pensioners of the Royal Hospital, Chelsea, on 23rd July, 1894, showing their capability of contributing towards their own maintenance.

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
	Serjeant-Major.				
s. *d.*					
2 7	Key, J.	7th Foot	53	..	
	Quarter-Master-Serjeants.				
3 1½	Thompson, J, ..	Coast Brigade, R.A. ..	73	..	
2 0	Whooton, J. ..	1st Derbyshire Regt. ..	49	..	
	Hospital Serjeant.				
2 6	Exton, G. ..	Army Hospital Corps ..	57	..	
	Messengers.				
2 0½	Hill, A.	24th Brigade, R.A. ..	59	..	
1 1½	Lethbridge. A. ..	District Staff, R.A. ..	37	..	
	Serjeant Porter.				
2 9½	Walsh, J. ..	1st Foot	52	..	
	Park Keepers.				
2 6	Byrnes, E. ..	15th Hussars	51	..	
0 11	Horsley, W. ..	Leinster Regt.	45	..	
2 1½	Miller, R. ..	60th Foot	55	..	
1 6	Staddon, S. ..	Royal Horse Artillery ..	45	..	
	Engineer in the Great Kitchen.				
1 0	Lynch, T. ..	Rifle Brigade	61	..	

The above constitutes the staff.

	Colour-Serjeants.				
s. *d.*					
1 11½	Down, E. ..	1st Dragoon Guards ..	60	Unable.	
1 6	Fox, F.	16th Lancers	64	„	
1 8	Lawson, J. ..	11th Hussars	67	„	
1 3	Leeper, W. ..	83rd Foot	73	„	
1 2	Walker, J. ..	91st Foot	64	„	
1 8	Wallace, W. ..	20th Hussars	71	„	

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
	Serjeants.				
s. *d.*					
1 9½	Asher, H. ..	104th Foot	62	..	Hospital Police.
1 11	Batchelor, J. ..	70th Foot	78	Unable.	
1 0	Biggs, S. ..	Coast Brigade, R.A. ..	64	,,	
1 0	Boyd, J. ..	30th Foot	66	,,	
1 2½	Bramston, R. ..	26th Foot	71	,,	
1 4	Butler, J. ..	72nd Foot	54	,,	
1 0	Doswell, H. ..	Grenadier Guards.. ..	68	,,	
1 0	Farnham, J. ..	20th Hussars	32	,,	
1 5½	Gallagher, D. ..	10th Hussars	74	,,	
1 1	Gillatt, G. ..	56th Foot	50	,,	
1 1	Graff, W. ..	84th Foot	72	,,	
1 10½	Green, T. ..	36th Foot	73	,,	
1 2½	Harding, T. ..	31st Foot	69	,,	
1 9	Harvey, R. ..	Coldstream Guards ..	72	,,	
1 0	Herbert, T. ..	48th Foot	72	,,	
1 3	Holgate, J. ..	18th Hussars	64	,,	
0 10	Hutton, R. ..	42nd Foot	71	,,	
1 5	Keating, J. ..	100th Foot	64	,,	
1 8	McCormick, J. ..	48th Foot	68	,,	
1 2	McGregor, G. ..	91st Foot	62	,,	
1 8	McKellar, A. ..	78th Foot	70	,,	
1 0	Randles, W. ..	2nd Battalion, R.A. ..	81	,,	
2 0	Stredwick, H. ..	Royal Engineers	68	,,	
1 3	Taylor, J. ..	107th Foot	58	,,	
0 6	Thompson, G. ..	69th Foot	81	,,	
	Corporals.				
1 3	Campbell, J. ..	39th Foot	60	Unable.	
1 4	Cherritt, S. ..	45th Foot	66	,,	
1 2	Clark, J. ..	67th Foot	65	,,	
0 6	Cresswell, J. ..	13th Hussars	66	,,	
0 9	Farrell, W. ..	77th Foot	54	,,	
1 1	Fox, H.	25th Foot	70	,,	
0 6	Hobbs, F. ..	9th Lancers	69	,,	
1 1½	Horton, T. ..	14th Hussars	69	,,	
1 3	Jones, J. ..	16th Foot	72	,,	
0 9	Jones, T. ..	50th Foot	72	,,	
1 1½	Lewis, C. ..	1st Foot	75	,,	
1 9	Mansbridge, H.	14th Hussars	61	,,	
1 2	McCulloch, W. ..	12th Lancers	79	,,	
1 0	Palmer, C. ..	Scots Fusilier Guards ..	72	,,	
1 1	Pickford, P. ..	80th Foot	67	,,	
0 10	Reid, G.	South Staffordshire Regt.	41	,,	
1 0	Robinson, A. ..	18th Brigade, R.A. ..	69	,,	
1 1	Sladen, S. ..	6th Brigade, R.A.	66	,,	
0 8	Smith, W. ..	7th Foot	55	,,	
0 11	Tiplady, C. ..	Royal Engineers	57	,,	
0 8	Tyson, W. ..	Coldstream Guards ..	66	,,	
	Drummers.				
0 10½	McDowell, H. ..	31st Foot	61	Unable.	
1 3	Reilly, J. ..	62nd Foot..	82	,,	
1 3	Higgins, C. ..	75th Foot	64	,,	
	1st Class Privates.				
1 3	Burton, G. ..	45th Foot	73	Unable.	
1 0	Coleman, G. ..	98th Foot	72	,,	
1 1	Grant, R. ..	4th Dragoons	77	,,	
1 0	Land, J.	5th Foot	75	,,	
0 8	Taylor, J. ..	44th Foot	69	,,	
1 9½	Allum, S. ..	41st Foot	70	,,	
2 0	Andrews, J. ..	11th Foot	73	,,	
1 0	Artlett, M. ..	34th Foot	68		
1 0	Bailey, E. ..	23rd Foot	56	,,	
1 1½	Bowditch, J. ..	Royal Horse Guards ..	74	,,	
1 3	Brew, G. ..	3rd Foot	68	,,	

Rate of pension. s.	d.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
		1st Class Privates —cont.				
1	0	Burton, J. ..	St. Helena..	62	Unable.	
0	8	Bywater, J. ..	25th Foot	74	,,	
1	0	Clark, G. ..	18th Foot	72	,,	
0	11	Coleman, J. ..	56th Foot	73	,,	
0	11	Cottle, J. ..	41st Foot	78	,,	
1	7	Cross, W. ..	10th Foot	76	,,	
2	2	Dewdney, T. ..	13th Brigade, R.A. ..	64	,,	
1	0	Dyas, E. ..	22nd Brigade, R.A. ..	63	,,	
1	10	Foxwell, N. ..	34th Foot	57	,,	
1	4	Gellett, J. ..	25th Foot	69	,,	
1	0	Hall, J.	Coast Brigade, R.A. ..	69	,,	
1	0½	Hayes, T. ..	Army Hospital Corps ..	71	,,	
0	8	Hufnell, J. ..	68th Foot	78	,,	
2	0	Kelly, M. ..	Royal Engineers	67	,,	
1	5	Luttrell, A. ..	88th Foot	72	,,	
1	10	Merrill, W. ..	16th Foot	93	,,	
0	9	Morter, R. ..	52nd Foot..	60	,,	
1	0½	O'Halloran, J. ..	55th Foot	70	,,	
1	0	Richardson, G. ..	8th Battalion, R.A. ..	76	,,	
1	1	Robinson, C. ..	5th Lancers	56	,,	
1	2	Ruthven, J. ..	Leicestershire Regt. ..	56	,,	
0	11	Sheldon, J. ..	Royal Engineers	59	,,	
0	11	Simpson, G. ..	2nd Battalion, R.A. ..	77	,,	
1	0	Skinner, J. ..	12th Brigade, R.A. ..	67	,,	
2	0	Smith, W. ..	1st Life Guards	63	,,	
1	3	Sowerby, J. ..	65th Foot	73	,,	
1	0	Stammers, S. ..	Royal Engineers	66	,,	
1	11½	Stott, E... ..	12th Lancers	64	,,	
1	0	Taylor, G. ..	12th Foot	77	,,	
1	1	Timmins, T. .	17th Foot	65	,,	
0	9	Wharf, R. ..	94th Foot	71	,,	
		2nd Class Privates.				
1	0	Adams, W. ..	14th Hussars	75	Unable.	
1	1	Adran, P. ..	96th Foot	56	,,	
0	10	Belcher, H. ..	11th Brigade, R.A. ..	62	,,	
1	3	Bobbins, J. ..	63rd Foot	87	,,	
0	8	Brown (1st) J...	97th Foot	73	,,	
1	0	Brown (2nd) J...	56th Foot	67	,,	
1	0	Browne, A. ..	10th Foot	86	,,	
0	9	Bryan, T. ..	76th Foot	69	,,	
1	0	Burn, J... ..	Depôt Brigade, R.A. ..	57	,,	
0	7	Carnelly, T. ..	80th Foot	46	,,	
0	9	Cassidy, J. ..	71st Foot	63	,,	
1	0	Connelly, D. ..	95th Foot	64	,,	
1	3	Cowan, A. ..	2nd Life Guards	73	,,	
1	3	Coyle, J ..	87th Foot	69	,,	
0	6	Crawford, W. ..	7th Foot	69	,,	
0	8	Crouch, S. ..	31st Foot	65	,,	
1	2	Dashfield, H. ..	52nd Foot	56	,,	
1	0	Deen, W. ..	10th Foot	57	,,	
0	11	Dixon, J. ..	Royal Canadian Rifles ..	71	,,	
1	0	Edwards, J. ..	92nd Foot	76	,,	
1	1	Farley, M. ..	73rd Foot	65	,,	
1	0	Firth, G. ..	39th Foot	74	,,	
1	1	Greenwood, J. ..	14th Foot	69	,,	
0	6	Harvey, C. ..	Depôt Brigade, R.A. ..	61	,,	
1	0	Holmes, F. ..	10th Foot	59	,,	
1	0	Houghton, L. ..	25th Foot	78	,,	
0	9	Kenny, M. ..	6th Foot	58	,,	
1	0	King, R. ..	60th Foot	81	,,	
1	0	McDermott, J. ..	19th Foot	73	,,	
1	1½	McDonald, W. ..	2nd Brigade, R.A. .	60	,,	
1	0	Marriott, J. ..	84th Foot	78	,,	
0	10	Martin, J. ..	71st Foot	71	,,	
0	7	Morgan, W. ..	60th Foot	73	,,	
0	10	Neate, J. ..	97th Foot	74	,,	
1	0	Nobles, C. ..	15th Foot	57	,,	
0	9	Nunn, J. ..	43rd Foot	69	,,	

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
	2nd Class Privates —cont.				
s. *d.*					
0 7	Pike, G... ..	12th Lancers	46	Unable.	
0 10	Powell, C. ..	18th Hussars	66	,,	
1 1	Prior, G. ..	40th Foot..	65	,,	
0 7	Richardson, J. ..	75th Foot	74	,,	
0 8	Roberts, W. ..	24th Foot	73	,,	
1 1	Shiles, R. ..	Rifle Brigade	62	,,	
0 8	Smith, R. ..	98th Foot	76	,,	
0 6	Steele, J. ..	43rd Foot	53	,,	
0 6	Stoneman, H. ..	13th Hussars	56	,,	
0 11	Taplin, G. ..	44th Foot	75	,,	
0 9	Thornley, J. ..	Royal Engineers	63	,,	
0 6	Webb, J. ..	52nd Foot..	83	,,	
0 9½	Whelan, J. ..	101st Foot	61	,,	
1 0	Wood, E. ..	69th Foot	82	,,	
	3rd Class Privates.				
	No. 1 Ward.				
1 0½	Austin, W. ..	6th Foot	70	Unable.	
1 1	Burtsell, J. ..	Rifle Brigade	56	,,	
1 1	Charles, E. ..	Scots Fusilier Guards ..	60	,,	
1 3	Choat, C. ..	Coast Brigade, R.A. ..	59	,,	
1 0	Cockram, W. ..	78th Foot	67	,,	
1 3	Connor, M. ..	63rd Foot	75	,,	
0 10	Crosby, R. ..	7th Hussars	57	,,	
0 9	Cusic, J... ..	9th Lancers	61	,,	
1 1	Davies, G. ..	11th Foot	65	,,	
1 0½	Friars, H. ..	Grenadier Guards.. ..	78	,,	
1 0	Hurren, J. ..	37th Foot	61	,,	
1 0	Jamieson, W. ..	School of Gunnery, R.A...	58	,,	
0 9	Marsh, H. ..	Bengal Artillery	70	,,	
0 8	Moran, J. ..	Scots Fusilier Guards ..	58	,,	
1 2½	Robins, G. ..	81st Foot	61	,,	
1 1	Trusler, A. ..	Army Hospital Corps ..	63	,,	
1 0	Trusler, J. ..	Coast Brigade, R.A. ..	71	,,	
0 10½	Yates, E. ..	29th Foot	62	,,	
	No. 2 Ward.				
1 3	Ackley, J. ..	East India Co. Art. ..	59	Unable.	
0 8	Bartlett, J. ..	10th Foot	72	,,	
1 1	Corden, W. ..	16th Lancers	71	,,	
0 9	Cowell, W. ..	48th Foot	66	,,	
1 0	Davidson, G. ..	1st Brigade, R.A... ..	85	,,	
1 0	Edwards, W. ..	97th Foot	67	,,	
1 0	Gosling, W. ..	108th Foot	57	,,	
1 0	Grant, P. ..	12th Foot	74	,,	
0 9	McEwen, S. ..	Royal Horse Guards ..	69	,,	
0 11	Poole, T. ..	1st Brigade, R.A... ..	64	,,	
1 1½	Such, W. ..	97th Foot	66	,,	
1 6	Smith, E. ..	14th Hussars	75	,,	
1 0	Turvey, J. ..	Grenadier Guards.. ..	58	,,	
0 7	Wilding, W. ..	Rifle Brigade	55	,,	
1 0	Wood, J. ..	46th Foot	75	,,	
	No. 3 Ward.				
0 7	Allard, W. ..	15th Foot	55	Unable.	
1 0	Bow, R... ..	60th Foot	77	,,	
1 1	Bradley, R. ..	28th Foot	72	,,	
1 1	Burt, C... ..	35th Foot	64	,,	
0 11	Childs, J. ..	5th Foot	59	,,	
1 1	Cruse, W. ..	Grenadier Guards.. ..	63	,,	
0 10	Frost, T. ..	8th Foot	66	,,	
0 11	Halls, W. ..	20th Foot	74	,,	
0 11	Hughes, J. ..	41st Foot	57	,,	
0 8	Long, E. ..	38th Foot	59	,,	

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
s. d.	*No. 3 Ward*—cont.				
0 4	McCartney, R.	15th Hussars	73	Unable.	
1 0	McHugh, T.	5th Foot	66	,,	
0 10	Morton, A.	15th Foot	64	,,	
0 10	Ovens, E.	44th Foot	71	,,	
1 2½	Paton, E.	Royal Engineers	68	,,	
0 6	Perrott, R.	40th Foot	74	,,	
1 1	Peters, H.	Army Hospital Corps	64	,,	
1 1	Sawyer, J.	Grenadier Guards	69	,,	
1 0	Simcock, W.	74th Foot	76	,,	
0 8	Styche, R.	1st Dragoon Guards	56	,,	
1 0	Sullivan, T.	73rd Foot	59	,,	
1 1	Todd, J.	15th Hussars	75	,,	
1 2	White, A.	55th Foot	59	,,	
1 0	Yorkstone, W.	Scots Fusilier Guards	66	,,	
	No. 4 Ward.				
1 0	Ayers, W.	Rifle Brigade	57	Unable.	
0 9	Bishop, G.	50th Foot	76	,,	
0 7	Burn, J.	7th Hussars	74	,,	
0 11	Carroll, E.	19th Foot	66	,,	
1 0	Costello, J.	16th Lancers	74	,,	
0 9	Eaton, G.	3rd Foot	75	,,	
1 0	Evans, R.	66th Foot	80	,,	
1 0	Hawes, G.	1st Foot	61	,,	
0 8	Herrick, J.	45th Foot	72	,,	
1 2	Lawrence, R.	12th Foot	53	..	Working man
0 9	Maley, E.	Army Hospital Corps	65	Unable.	
0 10	McNicoll, A.	1st Foot	76	,,	
0 11	Mitchell, G.	60th Foot	76	,,	
1 0	Nye, H.	52nd Foot	78	,,	
1 0	Selby, J.	Grenadier Guards	72	,,	
0 9	Serman, S.	29th Foot	74	,,	
1 0	Thompson, J.	10th Brigade, R.A.	65	,,	
0 10	Vincent, W.	58th Foot	71	,,	
0 8	White, W.	53rd Foot	60	,,	
0 9½	Wilson, W.	51st Foot	74	,,	
	No. 5 Ward.				
0 6	Beckett, T.	19th Foot	64	Unable.	
1 1	Bennett, J.	2nd Foot	58	,,	
0 10	Cooper, E.	12th Lancers	70	,,	
1 0	Cooper, W.	55th Foot	67	,,	
1 0	Creed, S.	Army Service Corps	59	,,	
0 11	Doyle, J.	10th Foot	68	,,	
1 1	Flitcroft, S.	1st Life Guards	71	,,	
0 9	Flynn, J.	8th Hussars	76	,,	
1 0	Gomery, W.	52nd Foot	74	,,	
1 1	Griffiths, W.	Rifle Brigade	59	,,	
1 1	Hartwell, J.	Coast Brigade, R.A.	61	,,	
1 1	Hubbard, J.	35th Foot	75	,,	
1 0	Limer, J.	49th Foot	71	,,	
0 11	McNaughton, A.	92nd Foot	65	,,	
0 10½	Rattray, J.	40th Foot	70	,,	
1 0½	Shannon, J.	51st Foot	58	,,	
0 9	Shipston, H.	45th Foot	72	,,	
1 2	Simons, S.	6th Foot	60	,,	
1 1	Thompson, W.	86th Foot	65	,,	
1 0	Tremayne, G.	22nd Foot	68	,,	
1 6	Wheeler, T.	Royal Engineers	57	,,	
1 0	Whitnall, R.	4th Brigade, R.A.	80	,,	
	No. 6 Ward.				
0 11	Aitken, T.	91st Foot	58	Unable.	
1 2	Bladen, W.	94th Foot	56	,,	
0 9	Blenning, W.	7th Foot	58	,,	
1 0	Brown, H.	82nd Foot	76	,,	

Rate of pension. s.	d.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
		No. 6. Ward— cont.				
0	9	Carson, T. ..	11th Brigade, R.A. ..	61	Unable.	
0	6	Cordingley, J. ..	Scots Guards	56	,,	
0	8	Cutts, E. ..	64th Foot	68	,,	
0	9	Derry, E. ..	70th Foot	74	,,	
1	0	Hill, J. ..	Depôt Brigade, R.A. ..	68	,,	
0	10	Hughes, T. ..	23rd Foot	70	,,	
1	1	Lynn, S.. ..	Royal Horse Guards ..	74	,,	
0	9	Marshall, C. ..	Bengal Horse Artillery ..	58	,,	
1	1	Morgan, W. ..	18th Hussars . ..	70	,,	
1	1½	Pettigrew, T. ..	West Riding Regt. ..	61	,,	
0	6	Pinkham, H. ..	81st Foot	70	,,	
0	7	Smith, J. ..	4th Hussars	60	,,	
1	5	Teeling, E. ..	7th Brigade, R.A.. . ..	64	,,	
1	1½	Theobald, T. ..	Scots Fusilier Guards ..	66	,,	
1	0	Thornley, J. ..	43rd Foot	68	,,	
0	9	Webb, D. ..	52nd Foot	73	,,	
		No. 7 Ward.				
0	11	Baker, W. ..	22nd Foot	55	Unable.	
1	0	Campbell, W. ..	26th Foot	58	,,	
0	6	Church, W. ..	72nd Foot	58	,,	
0	9	Davis, E. .	38th Foot	66	,,	
1	1	Dommett, J. ..	65th Foot	67	,,	
0	9	Doyle, J. ..	4th Foot	61	,,	
0	10	Elkins, R. .	10th Foot	71	,,	
1	1	Fielder, S. ..	Rifle Brigade	63	,,	
1	1½	Fry, G.	1st Life Guards	67	,,	
1	2½	Gardener, J. ..	16th Lancers	63	,,	
0	8	Green, J. ..	Depôt Brigade, R.A. ..	62	,,	
0	11	Heath, J. ..	22nd Foot	61	,,	
1	0	Lomax, G. ..	36th Foot	65	,,	
0	11	Malone, M. ..	8th Foot	57	,,	
1	0	Miller, J. ..	Scots Fusilier Guards ..	58	,,	
0	6	McCulloch, R. ..	106th Foot	59	,,	
1	1	Marshall, T. ..	Royal Scots Fusiliers ..	47	..	Working man.
1	6	Martin, T. ..	Depôt Brigade, R.A. ..	58	..	,, ,,
1	0½	Nodder, W. ..	7th Hussars	58	Unable.	
0	8½	Pearce, C. ..	Scots Guards	54	..	,, ,,
1	0	Pemberton, J. ..	8th Hussars	59	Unable.	
0	9	Pugh, J. ..	2nd Brigade, R.A. ..	56	,,	
1	1	Robinson, J. ..	48th Foot	62	,,	
1	0	Skelton, C. ..	28th Foot	68	,,	
0	10	Spelling, T. ..	Royal Scots	44	..	Working man.
1	0	Todd, J... ..	Royal Horse Artillery ..	68	Unable.	
0	10	Wilson, H. ..	79th Foot	66	,,	
		No. 8 Ward.				
0	8	Braden, W. ..	1st Class Army Reserve ..	64	Unable.	
1	1	Bundick, W. ..	83rd Foot	53	..	Working man.
1	0	Carroll, J. ..	8th Foot	61	Unable.	
1	3	Clegg, J. ..	Grenadier Guards.. ..	49	..	,, ,,
0	9	Clissett, T. ..	61st Foot	63	Unable.	
1	0	Fielding, S. ..	45th Foot	67	,,	
1	1	Fogarty, D. ..	West Riding Regt. ..	46	,,	
0	10	Hourigan, J. ..	21st Foot	66	,,	
0	10½	Hutchinson, F.. .	64th Foot	66	,,	
0	4	Jeffreys, W. ..	60th Foot	56	,,	
1	0	Kelgy, J. ..	Coast Brigade, R.A. ..	64	,,	
1	0	Kelly, C. ..	12th Foot	56	,,	
0	8	Kevens, W. ..	74th Foot	65	,,	
1	0	McPhale, D. ..	Coast Brigade, R.A. ..	62	,,	
1	0	Neaves, G. ..	Grenadier Guards	67	,,	
1	1	Pearson, J. ..	1st Dragoon Guards ..	69	,,	
0	9	Reed, F. ..	8th Foot	63	,,	
1	1	Stewart, W. ..	Rifle Brigade	62	,,	
1	0	Whatley, E. ..	Rifle Brigade	54	..	Working man.
1	0	Whelan, A. ..	46th Foot	53	..	,, ,,

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
	No. 9. Ward.				
s. *d.*					
0 11	Barry, J. ..	22nd Foot..	68	Unable.	
0 9	Carrington, G. ..	37th Foot	65	,,	
0 4	Carss, W. ..	75th Foot	70	,,	
1 1	Challons, J. ..	Army Service Corps ..	63	,,	
1 1	Clisham, F. ..	27th Foot	70	,,	
0 11	Cross, T. .	40th Foot	84	,,	
0 9	George, W. ..	Madras Artillery	79	,,	
0 6	Jones, W. ..	6th Foot	58	,,	
0 10	King, J. ..	46th Foot	64	,,	
0 6	Lockhart, A. ..	1st Brigade, R.A... ..	63	,,	
0 8	Mahoney, T. ..	Wiltshire Regiment ..	43	,,	
0 9	McDonald, W. ..	11th Foot	71	,,	
0 9	McInnes, J. ..	42nd Foot..	72	,,	
0 10	Scutt, C. ..	Scots Fusilier Guards ..	64	,,	
1 0	Simpson, T. ..	1st Madras Fusiliers ..	76	,,	
0 7	Walker, T. ..	Rifle Brigade	55	,,	
0 11	Willis, T. ..	54th Foot...	77	,,	
	No. 10 Ward.				
0 7	Bradshaw, T. ..	45th Foot	77	Unable.	
0 10	Brown, W. ..	72nd Foot	57	,,	
0 10	Burrows, G. ..	Royal Canadian Rifles ..	61	,,	
0 9	Cuff, J.	74th Foot	73	,,	
0 9	Eden, G. ..	West Surrey Regt. ..	42	,,	
0 6	Fielding, W. ..	49th Foot	62	,,	
1 0	Green, T. ..	Grenadier Guards ..	63	,,	
0 10	James, F. ..	Grenadier Guards ..	73	,,	
0 6	Jones, G. ..	11th Brigade, R.A. ..	59	,,	
1 0	Lewers, H. ..	7th Foot	58	,,	
0 6	Millard, W. ..	14th Hussars	74	,,	
0 9	Murrell, T. ..	3rd Foot	65	,,	
1 1	Nicholls, G. ..	Royal Horse Guards ..	59	,,	
1 0	Noonan, J. ..	9th Foot	78	,,	
0 9	Preston, W. ..	6th Foot	46	,,	
1 6	Roberts, J. ..	2nd Dragoons	51	,,	
1 6	Warhurst, E. ..	Coast Brigade, R.A. ..	60	,,	
1 4½	Whelahan, T. ..	4th Foot	63	,,	
1 0	Whelan, P. ..	Bombay Horse Artillery ..	76	,,	
1 0	Wilkinson, J. ..	38th Foot	53	,,	
	No. 11 Ward.				
0 8	Adams, W. ..	50th Foot	71	Unable.	
1 0	Austin, T. ..	7th Foot	73	,,	
1 0	Baker, T, ..	50th Foot	77	,,	
0 11	Bowman, J. ..	9th Foot	51	,,	
1 0	Coultra, T. ..	32nd Foot	75	,,	
1 0	Daley, J ..	106th Foot	71	,,	
1 0	Elkins, S. ..	13th Foot	58	,,	
1 0	Fraser, C. ..	72nd Foot	66	,,	
1 0	Kelly, P. ..	32nd Foot	68	,,	
0 9	Mercer, J. ..	Rifle Brigade	53	,,	
1 0	Newton, H. ..	Invalid Det., R.A... ..	77	,,	
1 1	North, T. ..	22nd Foot	72	,,	
1 2	Owen, S. ..	55th Foot	63	,,	
0 8	Reynolds, R ..	51st Foot	78	,,	
1 1	Rutley, J. ..	4th Foot	69	,,	
0 9	Staker, C. ..	4th Foot	68	,,	
0 4	Stanger, H. ..	3rd Dragoons	67	,,	
1 0	Taylor, J. ..	36th Foot	63	,,	
0 9	Thompson, J. ..	7th Foot	76	,,	
0 6	Turner, E. ..	97th Foot	65	,,	
1 0	Watkins, J. ..	66th Foot	72	,,	
	No. 12 Ward.				
0 8	Armstrong, J. ..	44th Foot	55	Unable.	
1 0	Barber, T. ..	1st Life Guards	59	,,	

Rate of pension. s.	d.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
		No. 12 *Ward*—cont.				
0	7	Beecroft, W. ..	33rd Foot	74	Unable.	
1	0	Chatterton, J. ..	4th Brigade, R.A. ..	67	,,	
0	11	Coles, T. ..	2nd Madras European L.I.	71	,,	
0	7	Collard, J. ..	30th Foot	61	,,	
0	10	Frostick, J. ..	50th Foot	73	,,	
0	10	Fulbrook, J. ..	Field Artillery	43	..	Working man.
0	10½	Garrett, J. ..	3rd Dragoon Guards ..	77	Unable.	
1	0	George, J. ..	Recruiting Staff, E.I. Co.	74	,,	
1	1	Hayes, J. ..	10th Hussars	65	,,	
1	0	Hillyer, W. ..	20th Foot	73	,,	
1	0	Holland, T. ..	3rd Brigade, R.A.	72	,,	
1	0	McIntyre, D. ..	74th Foot	66	,,	
0	11	Payne, J. ..	Royal Horse Guards ..	70	,,	
1	0	Rayner, J. ..	14th Brigade, R.A. ..	64	,,	
1	1	Squires, W. ..	Royal Engineers	59	,,	
0	10	Worger, A. ..	Royal Horse Artillery ..	65	,,	
		No. 13 *Ward.*				
1	0	Barham, J. ..	104th Foot	69	Unable.	
1	10½	Goatly, H. ..	Royal Horse Artillery ..	71	,,	
1	0	Horwood, W. ..	103rd Foot	66	,,	
1	3	Hunter, R. ..	Royal Horse Artillery ..	65	,,	
1	0	Hyde, J. ..	15th Hussars	78	,,	
0	6	James, H. ..	41st Foot	57	,,	
1	1	Lock, G. ..	8th Hussars	71	,,	
0	9	London, J. ..	2nd Dragoons	63	,,	
1	1½	McAteer, J. ..	3rd Foot	58	,,	
1	0	McDermott, W.	31st Foot	65	,,	
0	8	Parker, J. ..	97th Foot	69	,,	
1	0	Pepperell, G. ..	102nd Foot	54	..	Working man.
1	2	Redcliffe, W. ..	Depôt Brigade, R.A. ..	58	Unable.	
1	0	Rivett, J. ..	52nd Foot	74	,,	
0	6	Sabberton, H. ..	Depôt Brigade, R.A. ..	59	,,	
1	0	Stennett, J. ..	41st Foot	71	,,	
0	4	Terry, H. ..	9th Lancers	64	,,	
1	1	Thomas, J, ..	44th Foot	72	,,	
0	11	Thornton, W. ..	15th Foot	63	,,	
1	0	Townsend, W. ..	49th Foot	75	,,	
0	4	Turner, H. ..	4th Hussars	66	,,	
1	0	Twohig, J. ..	Commissariat Department, Bombay.	68	,,	
1	1	Webb, C. ..	2nd Foot	61	,,	
		No. 14 *Ward.*				
1	0	Barrett, P. ..	87th Foot	70	Unable.	
0	6	Carruth, J. ..	Royal Engineers	67	,,	
0	4	Conway, P. ..	4th Brigade, R.A. ..	63	,,	
1	0½	Cross, W. ..	King's Royal Rifles ..	62	,,	
1	1	Curtis, W. ..	Coast Brigade, R.A. ..	53	..	Working man.
0	9	Davidson, R. ..	98th Foot	71	Unable.	
0	8	Gissing, W. ..	68th Foot	71	,,	
0	4	Hitchcock, R. ..	25th Foot	75	,,	
1	0	James, C. ..	53rd Foot	63	,,	
0	8	Lane, B. ..	Royal Horse Artillery ..	41	,,	
0	11	McGowan, M. ..	88th Foot	69	,,	
1	0	McMahon, M. ..	70th Foot	53	,,	
1	0	O'Leary, C. ..	Bengal Artillery	73	,,	
0	7	Quantrill, W. ..	96th Foot	72	,,	
0	8	Rickards, J. ..	101st Foot	62	,,	
1	0	Smith, J. ..	23rd Foot	73	,,	
0	9	Sullivan, J. ..	3rd Bengal European Inf. ..	59	,,	
0	4	Sutcliffe, R. ..	18th Hussars	53	..	Working man.
1	1	Tongue, J. ..	70th Foot	63	Unable.	
0	6	Walton, J. ..	24th Foot	53	,,	
1	0	Ward, P. ..	12th Foot	62	,,	
1	0	Welsh, L. ..	92nd Foot	56	,,	
0	9½	Hatley, G. ..	2nd Bn. East Surrey ..	43	..	,, ,,

Rate of pension. s.	d.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
		No. 15 Ward.				
1	0½	Beauchamp, J. ..	1st Brigade, R.A.	56	Unable.	
0	6	Clark, J. ..	94th Foot	73	,,	
0	9	Collins, E. .	24th Brigade, R.A. ..	56	,,	
1	2	Cox, T.	40th Foot	61	,,	
0	11	Cook, M. ..	58th Foot	58	,,	
1	2	Davis, E. ..	39th Foot	57	,,	
0	9	Dwyer, D. ..	50th Foot	70	,,	
0	5	Farren, F. ..	7th Hussars	62	,,	
1	0	Garlick, T. ..	Royal Engineers	62	,,	
0	9	Gowan, S. ..	60th Foot	60	,,	
1	1	Lear, J.	29th Foot	63	,,	
1	0	Mack, T. ..	Coast Brigade, R.A. ..	58	,,	
0	9	Mason, E. ..	49th Foot	62	,,	
0	9	Matthison, H. ..	7th Brigade, R.A. ..	68	,,	
1	0	Nutt, J. ..	1st Bengal Fusiliers ..	69	,,	
1	0	Petcher, T. ..	2nd Bombay Lt. Inf. ..	72	,,	
1	0	Roberts, H. ..	Coast Brigade, R.A. ..	67	,,	
1	2½	Saunders, G. ..	18th Hussars	53	..	Working man.
0	9	Saunders, H. ..	Royal Horse Artillery ..	65	Unable.	
1	0	Sullivan, S. ..	Depôt Brigade, R.A. ..	58	,,	
0	10	Tidbury, C. ..	Royal Canadian Rifles ..	67	,,	
1	0	Wagg, J. ..	8th Foot	67	,,	
		No. 16 Ward.				
1	2	Andrews, F. ..	Royal Engineers	65	Unable.	
1	0	Ashworth, E. ..	2nd Foot	63	,,	
1	1	Brace, W. ..	Royal Canadian Rifles ..	66	,,	
1	0	Clohesy, J. ..	13th Foot	66	,,	
1	0½	Cole, W. ..	71st Foot	65	,,	
0	4	Collins, G. ..	8th Hussars	56	..	Working man.
1	1	Cooney, R. ..	14th Hussars	53	..	,, ,,
0	4	Fletcher, A. ..	Field Battery, R.A. ..	64	Unable.	
1	1	Gale, J.	Royal Horse Guards ..	68	..	,, ,,
0	11½	Harley, J. ..	West Riding Regt. ..	38	..	,, ,,
0	9	Hastings, D. ..	12th Foot	66	Unable.	
1	0	Holland, E. ..	17th Lancers	62	,,	
1	0	Hook, J. ..	West Riding Regt. ..	48	..	,, ,,
0	8	Murgatroyd, J. .	19th Foot	60	Unable.	
0	10	O'Callaghan, R. .	Royal Engineers	59	,,	
0	9	Porter, H. ..	Royal Engineers	62	,,	
1	0	Potterton, A. ..	Royal Engineers	61	,,	
1	0	Rafferty, J. ..	18th Brigade, R.A. ..	70	,,	
1	0	Rose, J.	Dublin Fusiliers	52	..	Working man.
0	9	Shibley, J. ..	17th Foot	56	Unable.	
0	11	Welch, R. ..	Depôt Brigade, R.A. ..	69	,,	
0	10½	Whitehouse, A. .	2nd Foot	54	..	,, ,,
1	0	Wilson, A. ..	1st Dragoons	59	..	,, ,,
		No. 17 Ward.				
1	0	Cahill, R. ..	60th Foot	56	Unable.	
1	4	Gaffney, J. ..	33rd Foot	65	,,	
0	8	Hillier, W. ..	8th Foot	65	,,	
1	1	Jenkins, J. ..	30th Foot	63	,,	
1	0	Murphy, P. ..	87th Foot	66	,,	
1	1	Ross, A. ..	71st Foot	63	,,	
0	11½	Scoble, P. ..	11th Hussars	56	,,	
0	10	Witt, J.	23rd Foot	63	,,	
		No. 19 Ward.				
1	10½	Austin, J. ..	3rd Dragoon Guards ..	71	..	Hospital Police.
1	1	Bayley, J. ..	Coast Brigade, R.A. ..	52	..	,, ,,
1	0	Hutchings, E. ..	Coast Brigade, R.A. ..	50	..	,, ,,
1	9	Marr, P. ..	4th Foot	56	..	,, ,,
1	0	McDermott, J. ..	38th Foot	61	..	,, ,,
0	6	Smith, N. ..	17th Brigade, R.A. ..	58	..	,, ,,
0	11	White, J. .	12th Lancers	53	..	,, ,,

Rate of pension.	Name and rank.	Regiment.	Age now.	How far able to contribute.	Remarks.
	No. 20 Ward.				
s. *d.*					
1 0	Carroll, T. ..	11th Foot	71	Unable.	
0 11	Coleman, J. ..	6th Dragoon Guards ..	76	,,	
0 8	Crouch, J. ..	95th Foot	58	,,	
0 10	Elliott, S. ..	Royal Engineers	61	,,	
0 9	Elms, W. ..	23rd Foot	66	,,	
1 1	Halloran, M. ..	11th Foot	66	,,	
1 2	Merritt, C. ..	Depôt Brigade, R.A. ..	61	,,	
0 11	Murrell, N. ..	29th Foot	67	,,	
0 6	Owen, E. ..	12th Foot	65	,,	
0 6	Powley, J. ..	96th Foot	85	,,	
0 10	Richardson, R. ..	68th Foot	61	,,	
1 0	Rochford, J. ..	44th Foot	68	,,	
1 0	Rowan, P. ..	Coast Brigade, R.A. ..	66	,,	
1 1	Rowles, G. ..	9th Foot	78	,,	
0 11	Weedon, J. ..	85th Foot	55	,,	
	No. 21 Ward.				
1 1	Arroll, T. ..	1st Foot	46	..	Working man.
1 10	Berry, W. ..	59th Foot	62	..	,, ,,
1 2½	Colclough, R. ..	12th Lancers	77	Unable.	
0 11½	Downes, T. ..	25th Foot	74	,,	
1 0	Feldwick, J. ..	50th Foot	73	,,	
1 6	Lawlor, J. ..	Coast Brigade, R.A. ..	59	..	Working man.
1 2	Lee, W. ..	Royal Engineers	56	..	,, ,,
1 0	McCleave, H. ..	Royal Horse Artillery ..	70	Unable.	
1 0½	McIntyre, W. ..	93rd Foot	72	,,	
0 9	Mitchell, T. ..	1st Class Reserve	53	,,	
	No. 22 Ward.				
0 8	Carter, W. ..	Grenadier Guards	71	Unable.	
1 2	Clayton, W. ..	Coast Brigade, R.A. ..	68	,,	
1 0	Cowden, P. ..	57th Foot	87	,,	
1 1	Lee, J.	Royal Canadian Rifles ..	64	,,	
0 9	Newall, G. ..	24th Foot	70	,,	
0 9	Nunn, W. ..	16th Brigade, R.A. ..	52	,,	
1 0	Smith, H. ..	96th Foot	61	,,	
0 11	Smith, J. ..	22nd Foot	78	,,	
1 1	Spilsbury, J. ..	41st Foot	68	,,	

Average age of the In-Pensioners, exclusive of Staff, Hospital Police, and Working Men—66$\frac{1}{12}$ years.

E. A. STUART,
Lieutenant-Governor and Secretary.

ROYAL HOSPITAL, CHELSEA,
23rd July, 1894.

THIRTY-SECOND REPORT

OF THE

ROYAL COMMISSIONERS

OF THE

PATRIOTIC FUND

TO

HER MAJESTY THE QUEEN.

1894.

Being the Twenty-Fifth Report of the Commissioners appointed by the Supplementary Commission, dated the 26th March, 1868.

31st MAY, 1894.

LONDON:
PRINTED BY THE ARMY & NAVY CO-OPERATIVE SOCIETY, LIMITED,
105, VICTORIA STREET, WESTMINSTER, S.W.

1894.

[C.—7435.]

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Colonel J. S. YOUNG, *Secretary to the Royal Commission, and the Executive and Finance Committee.*

53, *Charing Cross, S.W.*

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THIRTY-SECOND REPORT

OF THE

ROYAL COMMISSIONERS

OF THE

PATRIOTIC FUND.

31st MAY, 1894.

1. We, Your Majesty's Commissioners for the administration of the Patriotic Fund (appointed under the Supplementary Commission, dated 26th March, 1868), humbly submit to Your Majesty our Thirty-second Report.

2. The Funds administered by the Commission, with the several amounts standing to the credit of each Fund, on the 31st of December, 1893, were as follows:—

	£	s.	d.
Patriotic Fund	348,147	8	6
Rodriguez Fund	14,371	6	8
"Captain" Relief Fund	31,934	19	4
"Eurydice" ,,	14,567	2	8
Royal Naval ,,	7,791	13	6
Zulu War Fund	25,100	0	0
"Atalanta" Relief Fund	7,400	0	0
"Soldiers' Effects" Fund	119,608	11	9
Ashantee War Fund	2,000	0	0
Zervudachi Fund	1,726	4	3
Light Brigade (Balaclava) Relief Fund	2,800	0	0
County of Forfar Fund	815	16	5
*"Victoria" Relief Fund	62,875	4	3
Royal Victoria Patriotic Asylum Endowment Fund	157,651	17	10
,, ,, ,, Thurlow Fund	674	18	8
Roman Catholic Orphans' Fund	35,395	18	9
Total of Funds administered	£832,861	2	7

The following capital sums were allocated out of the Patriotic Fund in former years to secure nominations in perpetuity as under:—

1. For maintenance and education of five orphan daughters of Naval and Marine Officers in the Royal School for Naval and Marine Officers' Daughters	5,000	0	0
2. For maintenance and education of seven orphan sons of Naval and Marine Officers in the Royal Naval School	8,000	0	0
3. For maintenance and education of eighteen orphan sons of Military and Marine Officers in Wellington College	25,000	0	0
4. For education and partial maintenance of orphan children of Sailors, Soldiers, and Marines below the rank of Officer:—			
11 in Royal Seamen and Marines' Orphan Schools, Portsmouth	2,500	0	0
13 in Royal Naval and Military Free School, Devonport	2,500	0	0
Grand totals	£875,861	2	7

* NOTE.—The "Victoria" Fund has since 31st December, 1893, been increased by £5,535 received from Portsmouth Fund and by other contributions, making the total received to this date, May 9th, 1894, £73,190 9*s.* 0*d.*

3. A tabular Statement of the Stocks in which the above Funds are invested will be found in Appendix I. (pages 20 and 21). The Capital and Income Accounts of each Fund for the year 1893 are also appended (Appendices IX. to XXIV., pages 60 to 85); and the Report thereon of Mr. G. H. Tripp, the Auditor appointed by the Lords Commissioners of H.M.'s Treasury to audit the accounts of this Commission, will be found in Appendix IV. (pages 31 to 33).

Numbers of Widows, Orphans, and Others in Receipt of Benefits.

4. There were in receipt, on the 31st December, 1893, of benefits from the various Funds administered by the Commission the following :—

NAME OF FUND.	Officers.						Non-Commissioned and Petty Officers, Soldiers, Sailors and Marines.						
				Children.						Children.			
	Widows.	Widows re-married (half-allowance).	Other Dependents	Ordinary Allowance.	Special Infirm Allowance.	Education and Maintenance.	Widows.	Widows re-married (half allowance).	Other Dependents.	Ordinary Allowance.	Special Infirm Allowance.	In Orphanages.	Education and Partial Maintenance.
Patriotic Fund	63	7	...	2	6	...	912	470	...	...	10	...	...
Do. Royal Victoria Patriotic Asylum...	...	...	...	...	...	...	...	...	...	...	...	294	...
Do. Roman Catholic Orphans' Fund	...	...	...	...	...	...	...	...	...	...	...	72	...
Do. Nominations to:													
Royal Cambridge Asylum	...	...	...	...	...	...	3	...	...	...	...	...	...
Wellington College ...	...	...	...	...	...	18	...	...	...	...	...	...	...
Royal Naval School ...	...	...	...	...	...	7	...	...	...	...	...	...	...
Royal School for Naval and Marine Officers' Daughters	...	...	...	...	...	5	...	...	...	...	...	...	...
Royal Seamen and Marines' Orphan School, Portsmouth ...	...	...	...	...	...	...	...	...	...	...	...	...	7
Royal Naval and Military Free Schools, Devonport	...	...	...	...	...	...	...	...	...	...	...	...	3
Rodriguez Fund	1	...	2	...	...	5	...	...	...	...	...	...	...
"Captain" Relief Fund ...	...	...	...	...	...	...	39	46	4	...	...	...	...
"Eurydice" Relief Fund ...	3	1	...	2	...	...	17	15	...	...	...	...	...
Royal Naval Relief Fund ...	...	...	1	...	...	...	2	...	1	1	...	...	...
Zulu War Fund	8	...	...	9	...	...	26	...	...	5	...	1	...
"Atalanta" Relief Fund ...	5	...	...	8	...	...	11	...	...	5	...	...	...
"Soldiers' Effects" Fund ...	...	...	...	...	...	...	64	...	...	111	...	...	...
Ashantee War Fund	...	...	...	...	...	...	8	...	...	...	...	...	...
Light Brigade (Balaclava) Relief Fund	...	...	...	...	...	...	...	...	14	...	...	...	...
County of Forfar Fund ...	...	...	...	...	...	...	2	...	...	...	...	...	...
"Victoria" Relief Fund ...	6	...	*5	12	...	...	*64	...	*6	*99	...	...	...
Total ...	85	8	6	33	6	35	1148	531	25	221	10	367	10

* Since the 31st December, 1893, the number of Widows, Orphans and Other Dependents placed on the "Victoria" Fund has been largely increased, and the total number placed on the Fund up to this date will be found detailed in paragraph 11, page 17.

Actuary's Estimates.

5. Reports by the Actuary, Mr. Finlaison, have been furnished upon the financial condition of the Patriotic Fund and the "Soldiers' Effects" Fund as at 31st December, 1893.

The Report upon the Patriotic Fund will be found in Appendix II. (page 22).

In continuance of the policy which we have adopted for the last few years of increasing the allowances to the Widows, with due regard to the observance of the commands of Your Majesty as in the Commissions of 7th October, 1854, and 26th of March, 1868, we have directed that the scale of allowances for Widows on the books of the Patriotic Fund should be raised to the following rates, and it will be seen that the Actuary's Report admits of this boon being granted with safety financially.

Widows of	Ordinary Allowance. Per week.	With old age Allowance at 60 years of age. per week.	After 70 years of age. per week.
Privates and A. B. Seamen	6/0	8/0	9/0
Corporals and 2nd Class P. O.	6/6	8/6	9/6
Sergeants and 1st ,, ,, ...	7/0	9/0	10/0
Color-Sergeants and Petty Officers ranking as such	7/6	9/6	10/6
Sergeant-Majors & Chief Petty Officers	8/0	10/0	11/0

"Captain" and "Eurydice" Funds.

Inasmuch as these Funds were transferred to the administration of this Commission to follow the Rules of the Patriotic Fund in regard to the allowances, we have directed that the above scale of allowances be also issued to the Widows on the books of these Funds, which the Actuary's Reports last year shewed are well able, financially, to bear the increased liability.

The Report upon the "Soldiers' Effects" Fund will be found in Appendix III. (page 28) and shews that the financial condition of the Fund continues thoroughly satisfactory.

Zulu War Fund.

6. We have approved of the age for the issue of allowances for daughters of Officers, being extended from 18 to 21, as in the Patriotic Fund, with effect from 1st July, 1893, and that re-married women on becoming Widows again, and being in necessitous circumstances, may be restored to full allowances, as Widows.

ROYAL VICTORIA PATRIOTIC ASYLUM.

7. The average number of Orphans maintained in 1893 was 294, at a cost of £17 10*s.* 11*d.* for each Orphan, exclusive of charges for maintenance of buildings and grounds.

In our last Report we stated that the new Playroom provided through the contribution of £4,000 authorised by us from the Patriotic Fund General Account, in 1892, would soon be completed. We have now the pleasure to state that it has been in use since the spring of 1893, and has been the means of affording to the children a recreative exercise to the benefit of their health and physique as well as to their welfare generally.

Health.

8. The Report of Dr. Dobson, the Medical Officer of the Asylum, is as follows for the year 1893 :—

"The health of the children in the Royal Patriotic Asylum during the year 1893 was exceptionally good.

"In spite of the unusual prevalence in the neighbourhood, and, in fact over the whole of the Metropolis, of diseases to which children are especially subject, such as Scarlet Fever, Diphtheria, Measles, &c., the Patriotic Girls have, with the exception of a single case of Chicken-pox in May last, been entirely free ; although two members of the staff were attacked by the so-called Influenza, by prompt precautionary measures, the children were kept quite free from infection.

"One death has taken place, namely, that of a girl, Agnes Walker, aged 13 years, who died at her home in July after being under treatment, first at the Asylum and afterwards at Charing Cross Hospital, for Tubercular Hip Disease.

Religious Instruction.

9. The Diocesan Inspector inspected the School on the 7th December, 1893, and reported as follows :

"The general result is very creditable, particularly considering the changes of Staff. The present teachers must have worked well and ably to attain a standard uniformly high. The answering was generally intelligent and the pervading tone and demeanour of the children all that could be desired.

"Div. II.—The teaching on the Apostle's Creed merits unreserved praise, but there was a little hesitation about the *Christian Year*. The life of Our Lord, and the portion of the Old Testament history which the teacher had been able to revise since her appointment, were well grasped. The remainder of the Old Testament was less satisfactory. Repetition in every way satisfactory.

"Div. III.—The Biblical subjects had been well taught, as also the meaning of the Baptismal Covenant to Standard IV., but the knowledge of the Creed in Standard III. did not compare favourably with the brilliant answering of the lower class on the same subject. The knowledge of the Prayer Book was sound, intelligent, and eminently practical. The written work of Standard IV. was far above the average.

"Div. IV.—The knowledge of the meaning of the Catechism was general rather than precise, but this is the only criticism I have to make upon the work of these elder girls. All the subjects had been thoroughly, and, on some points, very ably taught. The written work shewed great care and intelligence."

Secular Instruction.

10. Your Majesty's Inspector's Annual Report was as follows :—

"The conduct of the girls under examination is very good. In elementary subjects the average quality of the attainments is somewhat higher than last year, but there is still much improvement needed in the Arithmetic of the Upper Standards. A higher standard of accuracy and intelligence must be reached before the larger Principal Grant can be recommended. The Recitations are well known in all the Standards. Needlework is of very good quality throughout. Singing by ear is praiseworthy, and Drill is very effici-

ently taught, especially in the Junior School. Two Reading Books must be used in the First and Second Standards, and Sewing exercises are expected from the First Standard."

The Committee of Management regret that the Principal Grant from the Education Department remains at 12*s*. 6*d*. per scholar instead of at the higher rate of 14*s*. previously obtained, but they hope that the measures they have taken, and will continue to take, to improve the efficiency of the Teaching Staff will in time bear satisfactory results.

" Victoria " Relief Fund.

11. During the forenoon of Friday, the 23rd of June, 1893, the news of the disaster which had on the previous day befallen H.M.S. "Victoria" off the Coast of Syria—whereby the Naval Commander-in-Chief in the Mediterranean, Vice-Admiral Sir George Tryon, and 361 Officers, Seamen, and Marines of H.M. Navy were drowned—first reached the Public in the Metropolis.

In the evening of the same day His Royal Highness the President of the Commission, acting in fulfilment of the responsibility laid upon the Commission, and under the powers granted to it by Patriotic Fund Act, 1886, viz :—

> " From time to time to ask for and receive contributions from " the public for such purposes, being for the benefit of the widows " and children of officers and men of Her Majesty's Naval and " Military Forces,"

addressed to the Lord Mayor of the City of London an appeal to open a Fund, with the object of caring for the widows, orphans, and other relatives who had by the disaster been suddenly deprived of husbands, fathers, and sons, their stay and support.

A copy of His Royal Highness's letter to the Lord Mayor will be found in Appendix V. (page 34).

His Royal Highness's letter accordingly appeared in the Public Press on the next day, Saturday, 24th of June, with the following note attached thereto :—

> " We are requested by the Lord Mayor to state that he has " opened a Fund at the Mansion House for the relief of the Widows, " Orphans, and dependent relatives of the men lost in Her Majesty's

" Ship, 'Victoria,' and will entrust the distribution of the relief to " the Royal Patriotic Fund, as in the case of the loss of the " 'Eurydice,' the 'Atalanta,' and other vessels. Donations should " be sent to the Mansion House."

Instant arrangements were made for the immediate relief, by means of the Mansion House Fund, of the bereaved sufferers, and the following letter, dated 29th June, was addressed to the Secretary of the Admiralty in connection with such arrangements :—

ROYAL COMMISSION OF THE PATRIOTIC FUND,
53, CHARING CROSS, LONDON, S.W.,
29th June, 1893.

SIR,

The Lord Mayor, in response to an appeal (copy enclosed) made by H.R.H. the Duke of Cambridge, President of the Commission, on the 23rd instant, announced the same day his intention to open a Fund for the relief of the Widows, Orphans, and dependent relatives of those who had lost their lives in the disaster which befel H.M.S. " Victoria " in the Mediterranean, and that he would entrust the distribution of the Fund to this Commission.

To enable this Commission to make arrangements to distribute promptly and equitably the relief to be afforded by the Fund opened by the Lord Mayor, I am directed to request that you will be pleased, at your earliest convenience, to cause me to be furnished with the names and addresses of the Widows, Orphans, and dependent relatives of those who it may be ascertained have lost their lives in H.M.S. " Victoria."

It would facilitate the necessary arrangements if this information could be furnished in separate lists according to the ranks and ratings of those who have so lost their lives.

1st.	Officers	
2nd.	Warrant Officers	
3rd.	Chief Petty Officers	or others ranking as such,
4th.	First Class Petty Officers	
5th.	Second Class Petty Officers	
6th.	Ordinary and A.B. Seamen	

and if against the name of each Widow, Orphan, and dependent relative could be entered the amount of any pension, allowance, or gratuity,

which will be contributed from Public Funds, or Funds under the control of the Lords of the Admiralty, for their benefit.

I am further to ask that I may be informed whether, following the precedent in the case of the loss of H.M.S "Captain," a gratuity of a year's pay for each of those who may have lost their lives will be handed over to this Commission for distribution in weekly allowances paid quarterly.

I have the honor to be, Sir,

Your obedient Servant,

J. S. YOUNG, Colonel,

Secretary.

THE SECRETARY TO THE ADMIRALTY,

WHITEHALL.

This letter was promptly acknowledged, and on 7th of August, and subsequently, information was furnished which was of great use in the investigation of claims on the Fund and in determining the awards made, but the gratuities referred to in the last paragraph of the letter were not handed over to the Commission.

On the 7th of July the First Lord of the Admiralty addressed to the Lord Mayor a letter, copy of which will be found in Appendix V. (page 35), together with the correspondence which ensued, and which resulted in the First Lord of the Admiralty conveying to the Lord Mayor his concurrence in the draft of the Deed of Trust by which the Mansion House Fund was ultimately placed under the administration of this Commission.

It was not, however, until the 9th of August that the first instalment of the Mansion House Fund was placed in the hands of the Patriotic Fund Commissioners.

It follows, therefore, that, from causes entirely beyond the control of the Patriotic Fund Commissioners, they had no power or means to convey immediate relief to the sufferers by the disaster to H.M.S. "Victoria."

In accordance, however, with the usual practice, the immediate necessities had in the meantime been met by the continuance, for two months, by the Admiralty authorities, of the allotments previously made

by the men lost, to their families. This was followed by the prompt issue of Greenwich Hospital pensions to all the Widows and Orphans, and gratuities to other dependent relatives varying from 3 to 12 months wages of the men upon whom such relatives had been dependent, while the next of kin in every case received the balance of wages and Savings Bank Deposits standing to the credit of each man at the date of the disaster.

The amounts thus paid by the Admiralty were as follows :—

To 83 *Widows and* 135 *Orphans of men below the rank of Warrant Officer—*

Greenwich Hospital pensions varying from 3*s.* 6*d.* to 6*s.* 6*d.* per week for each widow, and 1*s.* 6d. to 2*s.* per week for each child: also balance of wages due to deceased husbands, amounting in the aggregate to £1,057 9*s.* 0*d* , paid to 80 of the Widows.

To other Relatives of 224 *men who were lost—*

Gratuities amounting in the aggregate to . .	£2,937 19 3
Balances of wages and Savings Bank Deposits due to deceased men	2,081 1 11
	£5,019 1 2

The immediate necessities of sufferers by the disaster were further amply cared for by the opening on 27th June, 1893, of a Local Fund at Portsmouth, out of which it was publicly notified that the immediate relief of all dependent sufferers would be undertaken, and Miss Weston, of the Royal Sailors Rest, Portsmouth, to whom funds were being sent independently, agreed to work in connection with this Local Fund and to distribute the relief approved of jointly by her and by the Local Committee. The total amount disbursed in this way at Portsmouth was £2,800 or thereabouts.

With these local sources of relief the Patriotic Fund Commissioners were placed directly in touch by the formation of a Naval Committee at Portsmouth, in connection at one and the same time with this Commission and with the administration of local funds for the issue of relief.

There were also simultaneously formed at Devonport and Chatham, in connection with this Commission, Naval Committees from whom much valuable information was received.

The information obtained through these Local Committees made it clear that relief from the Mansion House Fund ought not to overlap the relief afforded from Portsmouth through the Local Committee there and Miss Weston, but that it was more desirable, from every point of view, and it was accordingly arranged, that this local relief should continue until a scheme for permanent relief of the Widows and Orphans had been matured and the investigation of the claims of all other dependents had been completed and adequately dealt with.

It was also obvious that no such scheme could be definitely framed, or estimate of total liabilities of the Fund made, until there was a reasonable security that every possible claim had been received. It was, however, possible to frame a provisional scheme of relief for the Widows and Orphans of men lost, and such a course was adopted by the issue from the 1st November, 1893, of a scale of allowances for Widows at the same rates as the Admiralty Pensions issued from the Greenwich Hospital Fund for Widows and of an allowance of 1/- per week for each child in supplement of Greenwich Hospital Fund allowances for children.

The Portsmouth Committee were further requested to record their recommendations for meeting any exceptional necessities, and accordingly the following Resolution, adopted by that Committee on 12th December, 1893, was received by the Executive and Finance Committee :—

> " Resolved that all the Widows' Pensions be re-considered from the point of view " of the rate of pay that was being earned by the husband, and that in those cases in " which the pension granted is obviously insufficient to maintain the Widow somewhat " in the same position as that in which she lived during her husband's lifetime, her " allowance should be increased, and in cases in which the grant for the Children " enables the Widow to maintain her former position, her allowance should be " increased as that for the Children ceases on their passing the limit of age.

That Resolution was accepted by a letter dated 19th December, 1893, from the Secretary of the Patriotic Fund Commission to the Hon. Secretary of the Portsmouth Committee, in the following terms :—

> " I am directed to acquaint you that the main proposition—that in those cases in " which the allowances to Widows already granted from the Fund are obviously " insufficient to maintain the Widows somewhat in the same position as that in which " they lived during their husband's lifetime, the allowances from the Fund should be " increased—is one with which my Committee cordially agree.

"My Committee felt from the first that in view of the divergent circumstances of "each Widow during the lifetime of their husbands, owing to the different rates of "pay enjoyed by the husbands, the scheme of *pro rata* allowances, based solely on the "classification adopted by the Admiralty, of those below the rank of Warrant Officer, "would not adequately meet the cases of Widows whose husbands enjoyed compara- "tive high rates of pay to others in the same classification; hence, in my letter to the "Naval Commander-in-Chief, dated 6th of September, the Committee at Portsmouth "were specially requested to 'record, on the Forms for the consideration of the claims "'of the Widows and Orphans on the Fund, *their recommendations for meeting any* "'*exceptional necessities*, in the space set apart on each Form of Application for notes "'by Local Committee.'

"Agreeing, therefore, that it is highly desirable to supplement the Admiralty "allowances to each Widow by allowances from the 'Victoria' Fund, *so as to secure* "*that she should be maintained somewhat in the same position as that in which she lived* "*during her husband's lifetime*, I am directed to ask that the Portsmouth Committee "will be so good as to make specific recommendations of allowances, which, in each "case of the Widows resident in Portsmouth and district, will, in their opinion, secure "in practice the attainment of the object desired."

On the 2nd January, 1894, the Portsmouth Committee submitted a Scale of Allowances for each Widow, which was adopted by the Executive and Finance Committee, and allowances in accordance with these were issued with effect as from the 1st November, 1893, the date of the provisional scale already alluded to.

A copy of the Scale of Allowances shewing the amount receivable annually, not only from the Victoria Fund, but also from the Greenwich Hospital Fund, by each Widow under the rank of Warrant Officer, together with other information, will be found in Appendix VII. (page 56).

The following scale of allowances for Widows and Orphans of Officers and Warrant Officers has been approved and brought into force with effect from 1st November, 1893, in supplement of the Pensions issued by the Admiralty to each Widow and Orphan according to the rank of the deceased Officer.

	Widows. Per annum.	Children. Each Child. per annum.
Fleet Paymaster's, Fleet Engineer's and Chaplain's	£53	£16
Engineer's	37	12
Warrant Officers	22	8

On the 22nd January, 1894, £5,535 was received as the balance available from the Local Fund at Portsmouth accompanied by a letter notifying that the following Resolution had been proposed and seconded by two Chief Petty Officers of the Navy:—

"That the thanks of this Committee be conveyed to the Com-
"missioners of the Patriotic Fund for the ready and generous way
"in which they have met the views submitted to them."

A copy of the Trust Deed by which the Portsmouth Fund was placed under the administration of the Commission will be found in Appendix VIII. (page 58.)

By the beginning of February, 1894, sufficient progress had been made with the investigation of the claims of dependent relatives, other than Widows and Orphans of those lost in the "Victoria," to enable a statement to be submitted to the Actuary of the Commission, Mr. A. J. Finlaison, C.B., Actuary of the National Debt Office, with a view to an estimate being made by him of the value of the Assets and Liabilities of the Fund in connection with the grants proposed to be made in satisfaction of the claims received and dealt with.

Mr. Finlaison's Report will be found in Appendix VI (pages 51 to 55) and shews that after providing for the awards made by this Commission to beneficiaries there would remain only a surplus balance available as a reserve for contingencies of £6,282 18*s.* 4*d.*

Since that estimate was made additional allowances for life to the extent of £239 10*s.* per annum and gratuities amounting to £586 18*s.* have been awarded for dependents, other than Widows and Orphans, and claims may yet be received in respect of 25 men who were lost.

It will thus be seen that practically the whole of the capital and income of the Fund has been appropriated.

The total numbers placed upon the Fund are as follows:—

	Widows.	Orphans.	
Officers	4	8	
Warrant Officers	2	4	
Seaman and Marines	83	135	
	89	147	236

OTHER DEPENDENT RELATIVES

of Officers

Mother	1	
Sisters	3	
		4

of Warrant Officers

Sisters	3

of Petty Officers Seamen and Marines

Parents (father and mother both alive)	232	
Fathers only	26	
Mothers only	56	
Foster-parents.	2	
Grand-parents	2	
Brothers and Sisters	24	
Uncles and Aunts	4	
		346
Grand total number of persons placed on the Fund		589

The awards to the "Other Dependent Relatives" as above have been made as follows:—

Allowances for life varying to a maximum of £18 4*s.* per annum for the benefit of	151 persons
Allowances for limited periods for the benefit of	94 ,,
Gratuities paid in a lump sum for the benefit of	108 ,,
Total	353 persons

At Malta a Fund was raised for the benefit of 17 Widows, 34 Orphans and 25 other Dependents of men lost in the 'Victoria,' who are resident at Malta.

A local Naval Committee was formed in connection with this Commission, which has relieved all these sufferers out of the Local Fund, and has already furnished us with valuable information, so that shortly all the Widows, Orphans and other Dependents will be paid from the Fund under the administration of this Commission, and the balance in hand of the Malta Fund will thereafter be remitted for inclusion with the Mansion House Fund.

12. We deeply regret to have to report the death of General Sir Frederick E. Chapman, G.C.B., who was appointed a Commissioner by Your Majesty on 9th August, 1890.

13. Your Majesty was pleased to appoint as Commissioners by Warrant dated 4th July, 1893.—

The Right Honble. William Lidderdale.

by Warrant dated 11th August, 1893—

Sir Stuart Knill, Bart.
Admiral Sir Anthony H. Hoskins, K.C.B.
Admiral Sir William M. Dowell, K.C.B.
Sir Evan MacGregor, K.C.B.

GEORGE, President.
EDWARD SAXE-WEIMAR.
NORFOLK.
RIPON.
NELSON.
MORLEY.
CLANWILLIAM.
CRANBROOK.
SIDMOUTH.
CHELMSFORD.
ACTON.
REVELSTOKE.
WANTAGE.
HERSCHELL.
SWANSEA.

WELBY.
E. F. LEVESON-GOWER.
EDWARD LUGARD.
HENRY DE WORMS.
GEO. ROB. TYLER, Lord Mayor.
WM. LIDDERDALE.
STUART KNILL.
GEORGE G. WELLESLEY.
FREDERICK STEPHENSON.
EDWARD C. HODGE.
A. H. HOSKINS.
ANTHONY B. STRANSHAM.
W. M. DOWELL.
RALPH THOMPSON.
EVAN MACGREGOR.
GEORGE HAYTER CHUBB.
G. FITZGERALD.
RALPH H. KNOX.

J. S. YOUNG, Colonel,
Secretary.

31st May, 1894.

APPENDIX

STATEMENT OF BALANCES ON STOCK ACCOUNTS IN H.M. PAYMASTER

TITLE OF STOCK.	General Account.	Don Rodriguez Fund.	"Captain" Relief Fund.	"Eurydice" Relief Fund.	Royal Naval Relief Fund	Zul Wa Fun
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£
2¾ per cent. Consols	4,032 15 0	...	...	...	...	...
Bristol Water Works 3½ per cent. Perpetual Debenture Stock, Acts 1882-8	5,000 0 0	12,500 0 0	...	...	...	...
Canada 4 per cent. Bonds, 1904	...	...	...	...	...	...
,, ,, (Reduced) Bonds, 1910 ...	17,600 0 0	...	...	...	...	...
,, ,, Inscribed Stock...	...	...	11,915 0 0	...	...	...
Cape 4½ per cent. Bonds, redeemable by Annual Drawings of 1 per cent.	26,500 0 0	...	...	...	...	...
Ceylon 4 per cent. Inscribed Stock...	...	...	564 0 10	...	235 0 4	...
East Indian Railway 4 per cent. Deferred Annuity Cap., Guar. with Profits	54,105 0 0	...	...	...	...	...
East and West India Dock 4 per cent. Deb. Stock	...	...	...	...	...	..
Great Indian Peninsula Railway 4 p. c. Deb. Stock	8,800 0 0	...	...	...	...	...
Great Western Railway, 4 per cent. Debenture Stk.	69,504 0 0	...	...	...	...	...
India 3½ per cent. Stock	...	...	...	...	...	...
Liverpool Corporation 3½ per cent. Stock	...	...	...	...	..	...
London and Brighton Railway, 4½ per cent. Perpetual Debenture Stock	15,000 0 0	...	...	...	...	...
London and Greenwich Railway, 4 per cent. Mortgage, 1908	...	...	...	...	...	...
London and St. Katherine Docks 4 p. c. Deb. Stock	...	...	...	...	...	...
Madras Railway 5 per cent. Stock	...	...	5,630 0 0	...	...	...
Manchester Ship Canal 4 p. c. 1st Debentures, 1914	...	...	...	...	..	...
New South Wales 5 per cent. Bonds, 1890-8 ...	...	...	...	...	..	...
New South Wales 5 per cent. Bonds, 1890-1900 ...	...	...	6,700 0 0	...	...	...
New South Wales 4 per cent. Bonds, 1903 ...	...	...	...	...	...	...
New South Wales 3½ per cent. Inscribed Stock, 1918	6,000 0 0	...	3,300 0 0	...	...	...
New Zealand 4 per cent. Inscribed Stock	...	...	...	...	...	...
New Zealand 3½ per cent. Inscribed Stock... ...	...	571 6 8	...	...	...	...
North Eastern Railway 4 per cent. Debenture Stock	60,000 0 0	...	...	...	...	...
Portsmouth Corporation 3 per cent. Stock ...	...	...	...	...	...	...
Queensland 4 per cent. Inscribed Stock	13,405 17 10	...	...	14,567 2 8	6,956 13 2	...
South Australian 4 per cent. Bonds, 1899-1929 ...	29,800 0 0	1,300 0 0	2,900 0 0	...	600 0 0	14,8
South Australian 4 per cent. Inscribed Stock, 1917-36	2,329 15 8	...	925 18 6	...	...	...
Victoria 4½ per cent. Bonds, 1904	...	...	...	...	...	10,8
Victoria 4 per cent. Bonds, 1899	...	...	...	...	...	...
West Australian 4 per cent. Bonds, 1902	...	...	...	...	...	...
Wigan Corporation 3 per cent. Stock	...	...	...	...	...	...
	312,077 8 6	14,371 6 8	31,934 19 4	14,567 2 8	7,791 13 6	25,1

* In addition to the above, there is held for the General Account, a yearly amount of £1623 3*s.* 0*d.* in the East In

Paymaster General's Office, Whitehall,

11th January, 1894.

I.

General's Books on December 31st, 1893, on Account of the PATRIOTIC FUND.

Ata-nta" elief und.	"Soldiers' Effects" Fund	Ashan-tee War Fund.	Zervudachi Fund.	Light Brigade (Balaclava) Relief Fund.	County of Forfar Fund.	Royal Victoria Asylum Endowment Fund.	Thurlow Fund.	Roman Catholic Orphans' Fund.	"Victoria" Relief Fund.	Totals.
£	£ s. d.	£	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
...	4,390 9 11	...	182 18 8	...	...	...	...	...	...	8,606 3 7
...	12,500 0 0	...	...	...	...	...	...	...	...	30,000 0 0
...	...	...	...	...	...	11,500 0 0	...	...	...	11,500 0 0
...	...	...	...	...	...	...	...	...	...	17,600 0 0
...	...	...	...	...	...	4,273 0 0	...	...	...	16,188 0 0
...	...	..	...	2,800 0 0	...	500 0 0	...	...	...	29,800 0 0
...	...	...	...	...	...	1,880 2 10	...	...	...	2,679 4 0
...	...	...	...	...	...	...	...	...	...	54,105 0 0
...	6,812 0 0	...	...	...	...	...	...	...	...	6,812 0 0
...	...	...	...	...	...	...	...	..	...	8,800 0 0
...	...	...	...	...	...	...	...	...	...	69,504 0 0
...	...	...	...	...	...	2,926 16 6	...	...	...	2,926 16 6
...	...	...	...	...	...	...	...	...	17,130 12 6	17,130 12 6
...	...	...	..	...	...	...	...	...	...	15,000 0 0
...	...	...	...	...	...	50,000 0 0	...	...	...	50,000 0 0
...	7,500 0 0	...	...	...	...	...	...	...	...	7,500 0 0
...	...	...	...	...	...	...	...	...	...	5,630 0 0
...	...	...	...	...	...	...	...	...	13,500 0 0	13,500 0 0
...	...	...	...	...	...	3,900 0 0	...	...	...	3,900 0 0
...	...	...	...	...	...	...	...	...	...	6,700 0 0
...	...	800	...	...	...	...	...	...	...	800 0 0
...	...	...	...	...	...	27,600 0 0	...	...	...	36,900 0 0
...	26,698 10 0	...	...	...	...	...	...	...	...	26,698 10 0
...	9,007 11 10	...	1,543 5 7	...	...	...	...	...	...	11,122 4 1
...	...	...	...	...	...	...	...	...	...	60,000 0 0
...	...	...	...	...	...	...	...	...	14,863 17 2	14,863 17 2
...	20,000 0 0	...	...	...	815 16 5	5,898 1 4	674 18 8	35,395 18 9	2,230 14 7	99,945 3 5
,400	12,300 0 0	400	...	...	...	28,500 0 0	...	...	...	97,500 0 0
...	11,000 0 0	...	...	...	...	10,473 17 2	...	...	...	24,729 11 4
...	...	...	...	...	...	10,200 0 0	...	...	...	21,000 0 0
...	...	800	...	...	...	...	...	...	...	800 0 0
...	9,400 0 0	...	...	...	...	...	...	...	...	9,400 0 0
...	...	...	...	...	...	...	...	...	15,150 0 0	15,150 0 0
,400	119,608 11 9	2,000	1,726 4 3	2,800 0 0	815 16 5	157,651 17 10	674 18 8	35,395 18 9	62,875 4 3	796,791 2 7

ilway Annuity, Class C., to February, 1953, less one-eighth surrendered (£202 17*s.* 10*d.*) towards a Sinking Fund.

(*Signed*) C. S. MAUDE.

APPENDIX II.

19, Old Jewry,

15*th March*, 1894.

Sir,

I transmit herewith the results of the customary annual valuation of the assets and liabilities of the Patriotic Fund, as they are reported to have stood on the 31st December, 1893, in the accounts and schedules supplied for the purposes of this investigation.

The annual amount of the pensions payable at the full rate to 912 Widows of Petty and Non-commissioned Officers, Soldiers, and Seamen, is reported at £13,293 on the 31st December, 1893, in comparison with £13,070 a year payable to 944 Widows on the 31st December, 1892. The addition of £223 made to the annual amount of the pensions payable to this division of the Widows, notwithstanding the decrease of 32 in their number in the course of the year, has been occasioned by an increase to the extent of one shilling a week which has been made to the allowances payable to Widows whose age exceeds seventy years.

The amount of the liability computed to be entailed on account of the £13,293 a year payable on 31st December, 1893, is £117,700; that is to say, £2,500 less than £120,000 which was calculated to represent the corresponding liability on 31st December, 1892. The liability is therefore computed to have been reduced, while the annual charge has been increased, which is to be explained by the decrease in the number and advance in the age of the pensioners.

The number of new allowances granted in 1893 was 5, while 16 Widows were transferred from the re-married rate to full allowances; 21 additions were therefore made, while 51 deaths were recorded in the course of the year, 2 of these having occurred in 1892; 2 Widows were struck off the list, one of whom had not been heard of for seven years; the total sum removed was consequently 53, that is to say, a net decrease of 32 as before mentioned.

The number of pensioners at the reduced rate was 470 at 31st December, 1893, in comparison with 515 at 31st December, 1892, the reduction having been effected by 28 deaths, one of which occurred in 1890; one removal from the list in consequence of the pensioner not having been heard of for seven years; and 16 transfers to the full pay list. The deaths among the pensioners are thus shown to have been nearly twice as many as those which occurred among their husbands; that is to say—an unexpected state of things, contrary to the experience of 1892 when 26 husbands and 23 re-married women appear to have died, representing a more usual proportion between the deaths of married people.

The amount of the pensions at the reduced rate at 31st December, 1893, was £3,227 a year; that is to say, £306 a year less than £3,533 a year chargeable at 31st December, 1892. The liability on this account has correspondingly decreased by £4,075 from £35,750 to £31,675.

The number of deaths reported among Widows in the year 1893, has been, as already stated, 49 from the full pay list, and 27 from those inscribed at the reduced rate; that is to say, 76 Pensioners, out of a total number of 1459, died in the year 1893. The rate of mortality was therefore between 52 and 53 per thousand. This rate of mortality, although it is not so high as the rate of 57 or 58 a thousand reported for 1892, is considerably above the rate which would correspond to the ages of the pensioners. The number of deaths which happened in 1892 and 1893 must, however, be viewed as exceptional. The rates for these two years are not in accordance with the experience of the Fund in previous years, and they cannot prudently be expected to recur. The number of deaths estimated to be likely to happen in 1894 among the 1,382 pensioners on the list is 56, that is to say, 20 fewer than the number reported to have taken place in 1893.

Provision has been made in the customary manner for the possible restoration of pensions in abeyance, £1,750 having been placed among the liabilities on this account; £1,500 has been reserved on account of allowances in sickness and subscriptions to Hospitals, and £1,750 on account of Funeral allowances.

Extra allowances, to the amount of £1,983 a year in course of payment on account of age to 380 Widows, are computed to entail a liability of £15,900, in comparison with £15,500 on account of £1,925 a year payable

to 369 Widows at 31st December, 1892 ; 44 Widows were placed on the old age list in 1893, but, as 33 were removed by death, the net increase was 11 as indicated by the numbers given above. This list can still be recruited from 532 Widows, who, if they survive, would be eligible for the allowance, and it can be added to from those of the re-married women who may happen to survive their present husbands. The provision made for deferred extra allowances at 31st December, 1892, to 575 Widows then on the full pay list was £25,500, and the corresponding liability has been increased this year to £31,100 on account of 532 Widows ; the increase to the liability being occasioned by an increased provision having been made on account of the grant of an extra one shilling a week which will be made to Widows who attain 70 years of age.

The provision for the restoration to the ordinary rate of full pay of 470 re-married women has been reduced from £15,600 to £14,250 in view of the advance in the age and the reduction in the number of the probable claimants. The provision on account of extra allowances to this class of pensioners, has, however, been increased from £11,900 to £15,140, because of the additional one shilling a week which would be payable to those pensioners who attain 70 years of age after the death of their present husbands.

The liability on account of three Widows in the Cambridge Asylum is placed this year at £1000 in comparison with £1,050 on 31st December,1892.

The number of Officers' Widows drawing ensions at the full rate on 31st December, 1893, was 63, in receipt of £2,218 a year, valued at £18,100, in comparison with 67, in receipt of £2,344 a year, computed to be worth £19,650 at 31st December, 1892. The number on the half pension rate at 31st December, 1893, was 7, who were claimants for £112 a year estimated to correspond to a liability of £1,166. The number of Officers' Widows who died in 1893 was 5, and although the numbers are now so limited that average occurrences are not to be expected, it may be remarked that the death-rate was higher than was to be expected from the ages and the number of the pensioners.

The liability on account of Funeral Allowances on account of Officers' Widows is placed at £715 ; on account of £136 a year extra allowances in course of payment to 15 aged Widows, £875 ; the provision for the possible restoration to full pay of the seven re-married ladies, £540 ; and for deferred and contingent extra allowances to the whole number of 70 Pensioners £3,300. The variation of these amounts from the liability shown for the

corresponding heads at 31st December, 1892, is not of sufficient extent to call for remark.

Allowances to Orphans are estimated to entail a liability of £2,950, in comparison with £2,990 at 31st December, 1892; the charge under this head being almost entirely on account of cases of infirmity.

Management and pensions are computed to entail a liability of £23,900, in place of £25,700 at 31st December, 1892; the decrease being due to the effect of the cessation of a pension and the advance of the average age of the pensioners on the probable duration of the charge.

A reserve of £6,000 for contingencies has been made this year in the manner customary on former occasions.

The valuation of the liabilities of the Fund has been made this year on corresponding principles to those adopted for the valuation at 31st December, 1892, so that the comparison of the liability under the several heads in which the charges on the Fund are ranged can be made on a uniform basis with the results of previous years. The rate of interest used in the valuation of the liabilities is fully justified by the relation which the income received on the securities held for the Fund bears to the value placed upon them. In comparison with the number of years during which the Fund has been in operation, it is not so very long ago that it might have been thought to be a sanguine view of the position of affairs to estimate that an income at the rate of four per cent per annum on the value placed upon the securities would be realised over the period during which the pensions would continue to be claimed. Had a lower rate of interest been adopted at that time as the basis of the valuation of the engagements of the Fund, the extent of the apparent liability would have been so large that it would probably have been considered desirable to place even greater restrictions than were in fact adopted upon the amount of the charges on the pension list. The progress of the Fund during the past fourteen years has shewn that a sufficiently high estimate had been placed upon the amount of the liabilities; while the great advance which has taken place in the market value of the Securities held for the Fund has aided, by means of the advantageous prices at which they have sold from time to time, in the increase of the surplus of assets.

The increase in the market value of that part of the capital of the Fund which had been invested in the Debenture Stocks of Railway Companies has been very marked since the year 1888 and may, perhaps, be now

considered to have assumed an almost permanent character. Any increase, however, to the value of the bulk of the securities held for the Fund on the face of the valuation balance sheet, would call for a variation of the rate of interest by which the present value of the engagements of the Fund are estimated. For instance, it might, perhaps, be possible, in view of the rise in the market value of the securities to write up their value to the extent of £40,000; but, if this were done, the value of the liabilities would have to be increased to the extent of at least £25,000, a course of procedure which would on the whole evidently increase the estimated surplus balance of the Fund by £15,000. It is to be borne in mind, however, that it is within the bounds of possibility that the market value of some of the securities may shrink, as others of them have expanded, and that the system which has been pursued by which the increase in the market value of the securities is brought into account from time to time as they are realised for the payment of pensions, results in a steady growth of the surplus, such as has taken place in recent years, which has enabled the Committee to make constant additions to the rates of allowance payable to the pensioners.

The value of the securities on the basis which has been adopted for several years past is £360,868.

The amount of the liabilities on a corresponding basis is computed to be £290,543, and a surplus balance of assets amounting to £70,325 is consequently disclosed.

The liabilities, as above mentioned, are inclusive of the extra allowance which had been granted in the course of the year 1893 to all Widows of Soldiers and Seamen above the age of 70 years, and also of a provision for a similar addition to the allowances of younger or re-married Widows, when they would attain the qualifying age as Widows. I have further calculated, in accordance with the request in your letter, the extent of additional liability which would be entailed by granting an additional one shilling a week to Widows under the age of 70 years. I find that the cost of such an additional pension may be estimated to be about £9,500.

I am, Sir,
Yours faithfully,
(Signed) ALEX. J. FINLAISON.

Colonel J. S. YOUNG,
Secretary to the
Royal Commission of the Patriotic Fund.

P.S.—The above amount of £9,500 represents the additional liability which the grant of One Shilling a week would entail to Widows under the age of 70 years at 31st December, 1893, that is to say, the cost of One Shilling a week while they are under the age of 70 years but not afterwards, as the expense of the grant of an extra Shilling a week after the age of 70 years is already included in the liabilities as at 31st December, 1893.

The expense of granting a further One Shilling a week to *all* Widows whether below or above 70 years of age may be estimated at £26,500.

(Signed) ALEX. J. FINLAISON.

APPENDIX II.—*continued.*

PATRIOTIC FUND.—31st December, 1893.

LIABILITIES.

	£
£13,293 a year Allowance to 912 Widows	117,700
£3,227 a year Allowance to 470 re-married Women	31,675
Provision for restoration of Pensions in abeyance	1,750
Allowances in Sickness, and Subscriptions to Hospitals	1,500
Funeral Allowances	1,750
£1,983 a year Extra Allowances in course of Payment to 380 aged Widows	15,900
Provision for Deferred Extra Allowances including addition at 70 years of age	31,100
Provision for restoration to Full Allowance of 470 re-married women	14,250
Provision for Deferred Extra Allowances to 470 re-married women, including addition at 70 years	15,140
Payment to Cambridge Asylum on account of 3 Widows	1,000
£2,218 a year Full Pensions to 63 Officers' Widows	18,100
£112 a year Half Pensions to 7 re-married Widows	1,166
Funeral Allowances	715
£136 a year Extra Allowances in course of payment to 15 aged Widows	875
Provision for restoration to Full Pension rate of 7 re-married Widows	540
Provision for deferred and contingent Extra Allowances	3,300
Allowances to Orphans including Provision for Outfits	2,950
Office Establishment, Stationery, Postage, &c.	18,000
Pensions	4,950
Commission on Post Office Orders	950
Reserve for Contingencies	6,000
Due to Bank of England	1,000
Due to General Account	230
Surplus Balance	70,325
	£360,868

ASSETS.

				£	£
Great Indian Peninsula Railway Debenture Stock	4 per cent.	£8,800		at 100	8,800
Canada Bonds (1910)	4 ,,	17,600		,, 100	17,600
North-Eastern Railway Debenture Stock	4 ,,	60,000		,, 100	60,000
London and Brighton Railway Debenture Stock	4½ ,,	15,000		,, 112½	16,875
Great Western Railway Debenture Stock	4 ,,	69,504		,, 100	69,504
Queensland Inscribed Stock (1915-1924)	4 ,,	13,405	17*s.* 10*d.*	,, 100	13,405
South Australian Bonds (1907-1929)	4 ,,	29,800		,, 100	29,800
,, Inscribed Stock (1917-1936)	4 ,,	2,329	15*s.* 8*d.*	,, 100	2,329
Cape of Good Hope Bonds (1897-1900)	4½ ,,	26,500		,, 100	26,500
New South Wales Inscribed Stock (1918)	3½ ,,	6,000		,, 90	5,400
Consols	2¾ ,,	4,032	15*s.* 0*d.*	,, 95	3,831
Bristol Water Works Perpetual Debenture Stock	3½ ,,	5,000		,, 100	5,000
East India Railway Annuity, Class C, £1,623 3*s.* a year, with Sinking Fund					36,070
East India Railway Deferred Annuity, Class D, with Profits and Sinking Fund		54,105		at 110	59,515
Dividends accrued at 31st December, 1893			£6,230		
Cash in Office			9		
					6,239
					£360,868

(*Signed*) ALEX J. FINLAISON,
15th March, 1894.

APPENDIX III.

19, Old Jewry, E.C.,
11th April, 1894.

Sir,

I forward herewith the usual Annual Valuation of the Assets and Liabilities of the "Soldiers' Effects" Fund, as they are reported to have stood on the 31st December, 1893, in the accounts and schedules supplied for the purpose of the investigation.

The Assets of the Fund have been increased in the course of the year 1893, by the transfer of £4,323 10*s.* 9*d.* Consols from the War Office under the Regimental Debts Act, and also by the transfer of £3,066 2*s* 5*d.* from the Income Account as the balance of the Income above the Expenditure of the year.

The Liabilities of the Fund stand practically at the same amount on 31st December, 1893, as they did on 31st December, 1892, the decrease in the value of the Allowances through the advance in age of the Pensioners, being virtually balanced by the value of the grants made in the year.

The number of Pensions payable to Widows at the 31st December, 1893, was 64 for £710 a year valued at £14,270, in comparison with 62 for £691 a year valued at £14,150 at the 31st December, 1892. None of the Pensioners died in the year, and the increase in the numbers arose from two grants made in the course of the twelvemonths. The number of Boys on the list was increased by two grants, while, on the other hand, 3 were placed in Orphanages and 11 attained the limiting age in the course of the year. The number of Girls was increased by five grants, while 1 was removed from the list and 2 were placed in Orphanages. The liability on account of Boys was decreased by £330 in the year, that is to say, from £1,350 to £1,020, and on account of Girls by £115, namely, from £1,325 to £1,210.

The reserve for Allowances in Sickness has been placed at £300, that is to say, at a corresponding amount to the estimate on this account for 31st December, 1892.

The reserve for Management has been increased from £3,400 to £3,600 principally on account of the increase in the Income of the Fund.

The Valuations has been made upon the basis of a rate of interest of 2½ per cent. per annum which corresponds to the rate adopted for 31st December, 1892.

The final result of the investigation is to disclose a surplus balance of Assets of £100,334 at 31st December, 1893, in comparison with £93,356 shown in the previous year, that is to say, an increase of £6,978 during the year 1893.

I am, Sir,

Yours faithfully,

(Signed) ALEX. J. FINLAISON.

Colonel J. S. YOUNG,
Secretary to the
Royal Commission of the Patriotic Fund.

APPENDIX III.—*continued.*

"SOLDIERS' EFFECTS" FUND.

31st December, 1893.

LIABILITIES.

	£
£710 a year Pensions to 64 Widows	14,270
£294 a year Allowances to 62 Boys	1,020
£232 a year Allowances to 49 Girls	1,210
Reserve for Allowances in Sickness	300
Commission on Post Office Orders	110
Management	3,600
Due to General Account	5
Surplus Balance	100,334
	£120,849

ASSETS.

			£	s.	d.		£	£
Consols	2¾	per cent.	4,390	9	11	at	95	4,171
Bristol Water Works Debenture Stock	3½	,,	12,500	0	0	,,	100	12,500
New Zealand Consolidated Stock (1929)	4	,,	26,698	10	0	,,	100	26,698
New Zealand Inscribed Stock (1940)	3½	,,	9,007	11	10	,,	93	8,377
Queensland Inscribed Stock (1924)	4	,,	20,000	0	0	,,	100	20,000
South Australian Inscribed Stock (1915-24)	4	,,	11,000	0	0	,,	100	11,000
South Australian Bonds (1907-1916)	4	,,	12,300	0	0	,,	100	12,300
West Australian Bonds (1902)	4	,,	9,400	0	0	,,	100	9,400
East and West India Dock Debenture Stock	4	,,	6,812	0	0	,,	94	6,403
London and St. Katherine Docks Debenture Stock	4	,,	7,500	0	0	,,	110	8,250
Accrued Dividends								£1,750
								£120,849

(*Signed*) ALEX. J. FINLAISON,

11*th April*, 1894.

APPENDIX IV.

Report of the Auditor appointed by the Treasury in pursuance of Section 17 of the Patriotic Fund Act, 1867 (30 & 31 Vict. c. 98), upon the Accounts of the Royal Commissioners of the Patriotic Fund for the year 1893.

1. The Accounts of the several Funds administered by the Royal Commissioners of the Patriotic Fund during the year 1893 have been examined by me with the relative Vouchers and Authorities, and subject to the observations contained in this Report, are certified as correct. The balances of Stock and other Securities standing in the names of the Official Trustees on the 31st December, 1893, have been verified by the Bank of England, with the exception of the balance of Ceylon Government Stock, which has been verified by the Crown Agents for the Colonies.

Office Establishment.

2. The Royal Warrant regulating the Office Establishment, to which reference was made in my predecessor's report for 1892, has been received, and the salaries paid to the Staff can now be certified as having been duly authorised.

Relief Books.

3. Numerous discrepancies between the Relief Books of the Commission and the Life Certificates rendered by the recipients of allowances (chiefly in the spelling of the surname of illiterate persons) have been investigated, and corrections made, when necessary, in the Relief Books.

Patriotic Fund.

4. It is my duty to draw attention to the circumstances under which an allowance was granted from the 1st January, 1893, to the widow of a man who had served in the Russian War, and who died of Consumption in 1874 (Case No. 3236). By Section 5 of the Patriotic Fund Act, 1867, and by the Royal Commission issued in accordance with the Statue, power is given for the application of the Fund in the relief of Widows of Soldiers, Seamen,

and Marines of Her Majesty's Army and Navy, "who lost their lives in "battle in the late war with Russia, or in consequence of wounds received "in or by or in consequence of other casualties sustained in or disease "contracted in that war." The case in question was reported upon as follows by the Medical Referee, before whom it came in the ordinary course: "The cause of death (Consumption) cannot be attributed to service in the Crimea." Notwithstanding this report the Executive and Finance Committee granted an allowance to the widow, and in connection with a question raised by me in regard thereto, the Committee stated that they "had power to judge, and in this case judged, that the cause of death was "due to disease contracted in the Russian War."

In view of the decided opinion recorded upon the official papers by the Medical Referee, I am unable to report that the provisions of the Act of Parliament have been complied with in this case.

5. Additional expenditure was imposed on the Patriotic Fund in 1893 in connection with the administration of the "Victoria" Relief Fund, but no charge for cost of management has been made against the latter Fund, as no directions in regard to this matter have yet been given by the Royal Commissioners.

Zulu War Fund.

6. The covering authority of the Royal Commissioners is required for the payment from the 1st July, 1893, of allowances at the rate of £7 per annum each to two daughters of a deceased Officer (Case No. 25), who are beyond the limit of age (18 years) prescribed by the Commissioners for the cessation of allowances. The payment has been made in anticipation of the approval of the Commissioners being given to an extension of the age limit.

Soldiers' Effects Fund.

7. The sum invested on account of this Fund on the 31st December, 1893, (by the purchase of Bonds and Stock from the Patriotic Fund and other Funds) exceeds by £5 15*s.* 6*d.* the balance of income available for investment.

Light Brigade (Balaclava) Relief Fund.

8. The grant in August last, with effect from the 1st April, 1893, of an Army Pension of 9*d.* a day to a discharged Soldier in receipt of an allowance from this Fund (Case No. 31) has necessitated the revision of his

allowance in accordance with the terms of the Trust Deed under which the Fund is administered. The amount paid before the notification of the grant of the Army Pension in excess of the sum allowable under the Trust Deed is being recovered by the temporary suspension of the allowance payable from the Fund. On the 31st December, 1893, the outstanding balance of the sum overpaid was £3 6*s.* 6*d.*

ROYAL VICTORIA PATRIOTIC ASYLUM.

9. The sum invested on the 31st December, 1893, (by the purchase of Stock from the Patriotic Fund) exceeds by £12 15*s.* the balance of income available for investment.

10. The wages of the Engineer, Carpenter, and Stoker employed at the Asylum have been charged in 1893 for the first time to the Building and Land Maintenance. Two consequences of this transfer of charge may be pointed out: (1) the wages of the Stoker and the cost of the fuel consumed are charged to different accounts; (2) the average cost per child for 1893, as shown in the ordinary account, is less by 14*s* 8*d.* than would otherwise have been the case.

(Signed) GEORGE H. TRIPP.

HOME OFFICE,
WHITEHALL,
22*nd March*, 1894.

APPENDIX V.

CORRESPONDENCE ATTACHED TO DEED OF TRUST—VICTORIA RELIEF FUND.

ROYAL COMMISSION OF THE PATRIOTIC FUND,
53, CHARING CROSS,
LONDON, S.W.,
June 23rd, 1893.

MY DEAR LORD MAYOR,

The Telegraph has brought to us all the direful intelligence of the loss of H.M.S. "Victoria," the Naval Commander-in-Chief, that gallant and well-known Officer, Admiral Sir George Tryon, and, it is said, 400 brave sailors and others of all ranks and ratings in H.M.'s Navy.

I know full well that this disaster will evoke not only universal sympathy but a widespread desire that that sympathy should take the form of practical generosity with the object of caring for the Widows and Orphans and other relatives who have thus suddenly been deprived of husbands, fathers, and sons—their stay and support.

As President of this Commission, which administers the funds raised by a generous public for the benefit of the widows, orphans, and dependent relatives of those who lost their lives in H.M.S. "Captain," "Eurydice," and "Atalanta," I am well aware how beneficently the public generosity has contributed to the comfort of those who were bereaved of their protectors and supporters by the loss of these Ships.

I, therefore, venture to appeal to your Lordship to open a Fund for the benefit of those who have in more senses than one lost their all by a disaster which has befallen H.M.S. "Victoria," feeling sure that the public will generously respond. It will afford me peculiar gratification, not only as President of this Commission, but as head of the Army, if your Lordship is pleased to accede to this appeal on behalf of those of the Sister Service, and thanking you in anticipation, allow me to remain,

My dear Lord Mayor,
Yours very faithfully,
(Signed) GEORGE, *President.*

THE RIGHT HON. THE LORD MAYOR OF THE
CITY OF LONDON.

LOSS OF HER MAJESTY'S SHIP, "VICTORIA."

MANSION HOUSE RELIEF FUND,
THE MANSION HOUSE, LONDON,
July 12th, 1893.

SIR,

I am directed by the Lord Mayor to ask you to lay the enclosed letter from the First Lord of the Admiralty before H.R.H., the President of the Royal Commission of the Patriotic Fund, and to invite an expression of H.R.H.'s views thereon.

Your obedient Servant,

(Signed) W. J. SOULSBY,
Secretary.

The Secretary of the
Royal Commission of the Patriotic Fund.

Enclosure.

ADMIRALTY,
July 7th, 1893.

MY LORD,

Though the Board of Admiralty as a public Department have no right or wish to interfere with the disposition of Funds voluntarily contributed by the public for a Charitable object, yet, individually, as First Lord of the Admiralty, I cannot but feel the greatest interest in their distribution.

The generous promptitude with which H.R.H. the Duke of Cambridge, as President of the Royal Patriotic Fund, and as representing the Army, invited your Lordship to allow a Fund to be opened at the Mansion House for assisting the relatives of those who lost their lives in the "Victoria" deserves full recognition from the Sister Service.

From my knowledge, however, of the existence of other Naval Funds for relieving sufferers from accidents in the Navy, and also the feeling existing in somewhat wide Naval Circles, that the distribution of relief in these cases should be placed to a much greater extent under naval control, than when managed by the Commissioners of the Royal Patriotic Fund, I suggest for your Lordship's consideration the possibility of associating with certain of the Patriotic Fund Commissioners an equal number of Naval

Officers to whom might be entrusted the carrying out of the general principles on which assistance should be given.

As your Lordship is aware there is already in existence a Naval Charitable Fund established out of the surplus profits of the recent Royal Naval Exhibition, and administered by a body of Trustees, of which H.R.H. the Prince of Wales is President.

These Trustees comprise a number of Naval Officers and Gentlemen fully qualified to represent the Navy, and it would be found easy to select from them persons admirably adapted for the proposed Joint Committee Among their number would probably be found officers acquainted with the organization of the "Serpent" Relief Fund, whose experience of the way in which that Fund has been managed and distributed would be useful.

If this Committee could be established the advantage would be obtained of bringing separate Charitable Trusts into touch with each other.

A suggestion has been made, which seems worthy of consideration, that at each of the principal Naval Ports a local Committee, representative in character, should be formed for the purpose of assisting the Central Committee in making enquiries into individual cases of distress.

I do not think it necessary at this moment to enter into the question of how any surplus remaining from the Fund now being raised should be disposed of, but it occurs to me at once that the proper course will be to provide for the amalgamation of such a surplus with the surplus or surpluses of existing trusts, so that ample means may in time be found of rendering substantial aid in the many accidents which are incidental to the Naval Service, but which, owing to the small number of persons affected, or to want of publicity, do not attract the spontaneous charity of the public.

It seems also needless for me to add that the Admiralty would readily give any assistance possible to the Body to whom the administration of the Fund may be entrusted, while we on our part will be glad of their co-operation in the necessarily difficult task of deciding upon the cases which have a claim for relief from public funds.

I am, my Lord Mayor,

Your obedient Servant,

(Signed) SPENCER.

THE RIGHT HON.

THE LORD MAYOR.

ROYAL COMMISSION OF THE PATRIOTIC FUND,

53, CHARING CROSS,

No. 1767. LONDON, S.W.,

July 21*st*, 1893.

MY LORD,

I have to express the thanks of the Commissioners of the Patriotic Fund to your Lordship for conveying to them at their meeting yesterday your suggestions which we cordially accept in connection with the question, referred to me by the Lord Mayor, of the administration of the Mansion House Relief Fund for the benefit of the families of those who perished in H.M.S. "Victoria."

The Commissioners passed the following Resolution—

> "That a letter be written in answer to the Lord Mayor embodying
> "the views expressed in the memorandum laid before the Patriotic
> "Fund Commissioners by the Accountant General of the Navy,
> "and that the letter be submitted to the First Lord of the Admiralty
> "before it is transmitted to the Lord Mayor."

In pursuance of that Resolution I have the honour to submit herewith the proposed letter* to the Lord Mayor, and to express the hope that it conveys the embodiment of your Lordships views.

I have the honour to be, My Lord,

Your obedient Servant,

(Signed) GEORGE.

THE RT. HON. EARL SPENCER, K.G.,
First Lord of the Admiralty,
&c., &c., &c.

* NOTE.—For copy of "proposed letter," see portions lined in margin of letter to Lord Mayor dated 24th July, which appears on pages next hereto, viz: 38 and 39.

ROYAL COMMISSION OF THE PATRIOTIC FUND,
53, CHARING CROSS,
No. 1767. LONDON, S.W.,
24th July, 1893.

MY LORD,

I have to thank you on my own behalf and that of the Commissioners of the Patriotic Fund for allowing me to express my views upon the proposals made in connection with the "Victoria" Relief Fund by the First Lord of the Admiralty.

These proposals have been laid before the Commissioners at a Special Meeting when they were favoured with suggestions made by the First Lord of the Admiralty as to how his proposals should be carried into practical effect.

With these suggestions we are in cordial sympathy, as they are on the same lines as the course adopted in the case of the "Captain" Fund administered by this Commission, and we have much pleasure in submitting them for your Lordship's consideration, as follows:—

1st. that this Commission and the Executive and Finance Committee be strengthened from a Naval point of view by the permanent addition to each body of a further number of Naval Officers:

2nd. that Local Naval Committees be formed at each of the principal Naval Ports for the purposes of affording information to and assisting the Executive and Finance Committee, but to have no part in the distribution of the Fund, and that the Petty Officers of the Navy should be directly represented thereon:

3rd. that should any surplus arise from the Fund after the claims admitted to participate in its benefits have been adequately met, such surplus should be amalgamated with surpluses arising from existing Naval Funds under this Commission as already provided for under Patriotic Fund Act, 1881, and thus be the means of rendering substantial aid to families of Sailors in the accidents which are frequently incidental to the Naval Service, but for which adequate or permanent provision cannot be made by the Admiralty, and which, owing to the small number of persons affected, or to want of publicity, do not attract the spontaneous charity of the public.

The Commissioners at their meeting also had the great advantage of the presence of one of their body, who is Naval Commander-in-Chief at Portsmouth, the Earl of Clanwilliam, and they accepted a submission from His Lordship that the Fund should be made applicable to cases of persons other

than relatives of those who perished in the "Victoria" whom it can be proved received support from any one who lost his life in the Ship. Lord Clanwilliam assured us that the number of such persons whom it is proposed so to admit to the benefits of the Fund would not be numerous, and that many sailors have given their subscriptions to the Local Funds at the Naval Ports on the understanding that these cases would be considered. We believe, so far as we are able to form an opinion, that the Fund will be able to meet these cases adequately.

I would further, for my own part, state that it would give pleasure to the Commissioners that it might be arranged that your Lordship, as the Treasurer of the Mansion House Fund, should personally join the Commission, and if you desire it, the Executive and Finance Committee also.

The foregoing proposals have been submitted to the First Lord of the Admiralty for his concurrence.

From Lord Spencer's reply, copy enclosed, it will be seen that his Lordship desires to reserve independence of action for the Admiralty in regard to the third of the proposals.

I have, however, to assure your Lordship that you need be under no misgiving in adopting the proposal in question, for this Commission, deriving its authority and directions for disposal of any surplus of any Fund administered by it from the Sovereign and Parliament, it is open to the First Lord of the Admiralty and the Government of the day to advise Her Majesty in any way thought necessary as to the administration or disposition of all or any of the Funds administered; and as the *particular* disposition of any surplus from the "Victoria" Fund is a matter for somewhat remote consideration, it would be unadvisable in the interests of those for whom the Fund was specifically raised to hamper its administration by any clause disposing of any probable surplus, except as provided for in our proposals.

It only remains for me to say that if the suggestions made herein meet with your Lordship's acceptance, this Commission is ready, at your convenience, to take over the administration of the "Victoria" Fund, and to arrange for the Solicitor to the Treasury preparing the formal Deed of Transfer.

I have the honor to be,

My Lord,

Your obedient Servant,

(Signed) GEORGE.

The Right Honourable,

SIR STUART KNILL, BARONET,

Lord Mayor of the City of London.

1908.

ADMIRALTY,

22*nd July*, 1893.

SIR,

I beg to acknowledge your Royal Highness' letter of July 21st.

I am glad that the Royal Patriotic Fund Commission consider on the whole favourably the suggestions which I ventured to make in my letter of July 7th to the Lord Mayor.

That letter represents my views, and the Commissioners have in their draft letter to the Lord Mayor made proposals to carry several of them out, viz:—

1. By introducing more representatives of the Navy upon the Commission and the Executive Committee for administering the Fund, if the Lord Mayor should entrust its distribution to the Patriotic Fund Commissioners.

2. By establishing Local Committees for advice at the principal Naval Ports on which representatives of the Seaman and Marines should be placed.

I am glad to notice, although this was not in my letter, that the Commissioners propose to extend the Fund to dependents as well as relatives of those who were lost.

These propositions are very satisfactory to me. I must, however, say that the proposal number three in the draft letter to the Lord Mayor does not completely represent my views. It assumes that if there is any surplus after the claims of those eligible for aid have been adequately met, this and other surplus funds belonging to other Naval Relief Funds shall be administered by the Patriotic Fund Commissioners.

In my opinion this question should be kept open for future consideration. I should be prepared to advise the appointment of some strong and independent Committee to investigate the whole history, method of administration, and position of the various funds which have in view the relief of distress in the Navy, whether after some accident or otherwise.

These funds are somewhat numerous, and besides those administered by the Patriotic Fund Commission, include the Royal Naval Fund, the "Serpent" Fund, the "Royal Adelaide" Fund, &c.

It is possible that such a Committee would recommend that these Funds should remain separate, but it might recommend that they should be amalgamated under one new Trust, or that they should be amalgamated under certain conditions with those under the Royal Patriotic Fund Commission.

Having these views I am unwilling to assent to the 3rd paragraph of the letter, as I wish to reserve my independence of action in regard to this part of the question.

Finally, I desire to repeat what I stated in my letter of the 7th July, that I have no desire to intervene, officially, as to the management of this large Fund, which the public have so generously subscribed.

My object in making my suggestions is to endeavour to secure the support of the Naval Service for the Body to whom the Lord Mayor may entrust its distribution and management.

I can engage that the Admiralty will assist this body with all the information at its disposal.

Thanking your Royal Highness and the Commission for so courteously sending to me the proposed letter to the Lord Mayor,

I have the honour, Sir, to remain,

Your Royal Highness' obedient Servant,

(Signed) SPENCER.

Field-Marshal,

His Royal Highness

The Duke of Cambridge, K.G.

ADMIRALTY, S.W.,

25th July, 1893.

MY LORD,

I should be perfectly satisfied to allow your Lordship to decide the question as to the administration of the "Victoria" Fund without any further expression of opinion on my part than is given in the letter to your Lordship of 7th July, and in the letter to H.R.H. the Duke of Cambridge of 22nd July.

But as you directly ask me whether I think that you will be doing right to hand over the Fund to the Royal Commission of the Patriotic Fund on the understandings and safeguards mentioned in the letter of H.R.H. the President, I reply to your Lordship that I should generally acquiesce in the proposal which has been made to you.

I lay, however, great stress on the necessity of keeping open the question of the future disposal of a possible surplus.

If your Lordship agrees with the views which I expressed on this point in my letters, you will, doubtless, be able to obtain security for this in any deed by which you may transfer the subscriptions, under the conditions agreed upon, to the Patriotic Fund Commissioners.

This question is governed, to a great extent, by the Patriotic Fund Act of 1881, which has hitherto been considered to contemplate the continued administration of surplus funds by the Commissioners.

I think, therefore, it would be well to avoid the necessity of passing an Act of Parliament to overrule, if it should be so decided, this provision.

I remain, my Lord,

Your obedient Servant,

(Signed) SPENCER.

The Right Honourable,

The Lord Mayor.

No. 1767. THE MANSION HOUSE,

LONDON,

July 28th, 1893.

SIR,

In reply to your Royal Highness's letter, with enclosures, of the 24th inst., I have the honour to state that with the concurrence and consent of the First Lord of the Admiralty I have decided to entrust the administration of the H.M.S. "Victoria" Relief Fund, to the Royal Commission of the Patriotic Fund on the conditions indicated in the letters of your Royal Highness and the First Lord of the Admiralty which I enclose. I should be glad if your Royal Highness would arrange for the Solicitor to the Treasury to prepare the formal Deed of Transfer and to submit me in draft first so that I may consult the First Lord of the Admiralty as to whether it covers the various points on which he appears to lay stress.

I have the honor to be, with much respect,

Sir,

Your Royal Highness's obedient

and faithful Servant,

(Signed) STUART KNILL,

Lord Mayor.

His Royal Highness

The DUKE OF CAMBRIDGE, K.G.,

President of the

Royal Commission of the Patriotic Fund.

"VICTORIA" FUND.

LETTER FROM PRIVATE SECRETARY OF FIRST LORD OF THE ADMIRALTY TO THE PRIVATE SECRETARY OF THE LORD MAYOR.

11*th August*, 1893.

DEAR SIR,

Lord Spencer desires me to return the enclosed draft deed of trust for the administration of the "Victoria" Relief Fund, and to request you to inform the Lord Mayor that, subject to the alterations shown in red ink,* his Lordship concurs in the proposed indenture.

* *See below.*

His Lordship would have been glad to avoid the introduction of the name of the First Lord of the Admiralty in the deed, but he has been assured that it is only by this means he can provide for the future consideration of the disposal of the surplus funds in the manner contemplated by him.

I remain,

Yours faithfully,

W. GRAHAM GREENE.

W. J. SOULSBY, ESQ.

P.S.—Mr. Chance (Solicitor to the Treasury) has been so informed.

CLAUSE 3 OF DRAFT DEED.

Addition proposed by First Lord of the Admiralty.

* The Commissioners will at the request of the First Lord of the Admiralty for the time being, assign and transfer such portion to such person or persons as may be nominated by the First Lord of the Admiralty to receive the same to be dealt with by such person or persons for the benefit of the Widows and Children of and other persons dependent on Officers and Men of Her Majesty's Naval Service, and until such portion shall be so assigned and transferred.

As drawn by Solicitor to the Treasury.

3. If after all claims for relief from the "Victoria" Fund shall in the opinion of the Commissioners have been fully satisfied any portion of such Fund shall remain undisposed of, * such portion shall be dealt with by the Commissioners for such purposes for the benefit of the Widows and Children of and other persons dependent on Officers and Men of Her Majesty's Naval Forces and in such manner as the Commissioners from time to time think expedient and Section 4 of the Patriotic Fund Act, 1881, and Section 3 of the Patriotic Fund Act, 1886, shall apply to such portion as if the "Victoria" Fund were a Fund mentioned in the Schedule to the Patriotic Fund Act, 1881.

ROYAL COMMISSION OF THE PATRIOTIC FUND,

1924. 53, CHARING CROSS, LONDON, S.W.,

5th September, 1893.

MY LORD,

The Commissioners of the Patriotic Fund have very carefully considered the addition proposed to you by the First Lord of the Admiralty, as detailed in the enclosed printed paper,* to be made to Clause 3 of the Draft Deed of Trust for the Mansion House "Victoria" Relief Fund, and I have to thank you for referring the matter for the consideration of this Commission.

* Copy of foregoing page 44.

The Commissioners have arrived at the conclusion that the proposed addition would be inconsistent with the policy indicated by the Legislature, in relation to the surplus of funds administered by this Commission.

In arriving at this conclusion the Commissioners had the advice and assistance of the Lord Chancellor, Lord Herschell, a member of the Commission, and I have informed the First Lord of the Admiralty of the conclusion at which we have arrived, by letter of this date, of which I append a copy for your Lordships information.

I have the honor to be, My Lord,

Your obedient Servant,

(Signed) GEORGE.

The Right Honble.
SIR STUART KNILL, Bart.,
Lord Mayor of the City of London.

ROYAL COMMISSION OF THE PATRIOTIC FUND,
53, CHARING CROSS, S.W.,
LONDON,
5th September, 1893.

MY LORD,

In connection with the draft Deed of Trust for the Mansion House "Victoria" Relief Fund as drawn by the Solicitor to the Treasury to meet the requirements detailed in the correspondence which has passed between your Lordship, the Lord Mayor, and myself on the administration of the Fund, the Lord Mayor has referred for the consideration of this Commission the addition to Clause 3 of the Draft Deed proposed by your Lordship as set forth in the enclosed printed paper.*

* For Copy see page 44

The Commissioners have considered the proposed addition with every desire to meet your Lordship's wishes if at all possible from any point of view consistent with their public responsibilities.

They are, however, forced to the conclusion embodied in the following Resolution at which they have arrived :—

> "That the proposed addition would be inconsistent with the "policy indicated by the Legislature in relation to the Surplus of "Funds administered by the Commission; but that the execution "of the Deed in the terms originally proposed will not preclude "the First Lord of the Admiralty, if he should be so advised, from "initiating thereafter an enquiry into the best mode of administering the various Funds existing for the benefit of those dependent "on officers and men of the Royal Navy who have lost their lives "in the service of the Crown."

I am to suggest that in order to meet your Lordship's wishes as far as possible, the whole correspondence which has passed should be attached to the Deed of Trust of the "Victoria" Fund.

I have the honour to be,
My Lord,
Your obedient Servant,
(Signed) GEORGE,
President.

The Right Honourable
EARL SPENCER, K.G.,
First Lord of the Admiralty,
Admiralty, S.W.

ADMIRALTY, S.W.,

SEPTEMBER 7*th*, 1893.

SIR,

I have the honour to acknowledge the receipt of your Royal Highness's letter of the 5th September, enclosing copy of a resolution adopted at the recent meeting of the Royal Patriotic Fund Commissioners with reference to the proposed amendment of Clause 3 of the Draft Deed. I still adhere to the opinion I have previously expressed that it will be very important at the proper moment to place the surpluses arising from the various Naval Charitable Funds, including that of the "Victoria" Relief Fund, under one management.

After, however, considering the objections made by the Royal Commissioners to the terms of the clause suggested by me I do not wish further to press this point, and I am prepared to accept the decision of the Commissioners as embodied in their resolution.

It will be satisfactory to me that the correspondence that has passed on the subject should be attached to the Deed in the manner proposed by your Royal Highness.

I have the honour to be, Sir,

Your Royal Highness's obedient Servant,

(Signed) SPENCER.

Field Marshal,

H.R.H. THE DUKE OF CAMBRIDGE, K.G.

APPENDIX V. (*continued*).

VICTORIA RELIEF FUND—DECLARATION OF TRUST.

This Indenture made the twenty-first day of September, one thousand eight hundred and ninety-three, BETWEEN THE RIGHT HONORABLE SIR STUART KNILL, BARONET, Lord Mayor of the City of London (hereinafter called "The Lord Mayor"), of the one part, and THE COMMISSIONERS OF THE PATRIOTIC FUND (hereinafter called "The Commissioners") of the other part.

WHEREAS on the twenty-second day of June, one thousand eight hundred and ninety-three, Her Majesty's Ship, "Victoria," foundered off Tripoli, on the Coast of Syria, when the Naval Commander-in-Chief in the Mediterranean, Vice-Admiral Sir George Tryon, and three hundred and sixty-one Officers, Seamen, and Marines of Her Majesty's Navy were drowned.

AND WHEREAS by letter bearing date the twenty-third day of June One thousand eight hundred and ninety-three, His Royal Highness the Duke of Cambridge, as President of the Royal Commission of the Patriotic Fund, invited the Lord Mayor to open a Fund at the Mansion House for the Relief of the Widows, Orphans, and dependent Relatives of those who lost their lives by the foundering of Her Majesty's Ship, "Victoria," as aforesaid.

AND WHEREAS a Fund was opened by the Lord Mayor accordingly, and the donations subscribed thereto now amount to the sum of over Sixty-five thousand pounds.

AND WHEREAS the Lord Mayor proposes to intrust the distribution of the Fund so formed to the Commissioners, and for that purpose to hand over to them the aforesaid sum of over Sixty-five thousand pounds and any donations which may be hereafter subscribed for the purposes of the said Fund, and the Commissioners have agreed to take over and to distribute and administer the said Fund and any such further donations thereto, as aforesaid, in accordance with the agreements and declarations hereinafter contained.

NOW this Indenture witnesseth that, in consideration of the premises, it is hereby agreed and declared as follows :—

1. When and so soon as the Lord Mayor shall have paid to the account at the Bank of England of the Official Trustees of the Patriotic Fund the said sum of Sixty-five thousand pounds and any such further donations as shall be subscribed to the said Fund as aforesaid (all which sums, and the investments thereof, are hereinafter together referred to as "The Victoria Fund"), the Commissioners shall stand possessed thereof in trust to invest the same in or upon any such stocks, funds, shares, securities, or other investments of what kind or nature soever as they in their discretion shall think fit, and to apply from time to time the income arising from the Victoria Fund, and the whole or such part of the principal of the said Fund as may be necessary in the relief, in manner provided by the Patriotic Fund Acts, 1867 to 1886, and by the Patriotic Fund Commissions, of the widows and orphans of, and other persons dependent on, those who lost their lives by the foundering of Her Majesty's Ship, "Victoria," as aforesaid.

2. For the purpose of furnishing information to, and assisting the Commissioners in connection with claims upon the Victoria Fund, the Commissioners will appoint local Naval Committees at Chatham, Portsmouth, and Devonport, on each of which Committees Seamen and Marines shall be directly represented.

3. If, after all claims for relief from the Victoria Fund shall, in the opinion of the Commissioners, have been fully satisfied, any portion of such Fund shall remain undisposed of, such portion shall be dealt with by the Commissioners for such purposes for the benefit of the Widows and Children of, and other persons dependent on, Officers and Men of Her Majesty's Naval Forces, and in such manner as the Commissioners from time to time think expedient, and Section 4 of the Patriotic Fund Act, 1881, and Section 3 of the Patriotic Fund Act, 1886, shall apply to such portion as if the Victoria Fund were a Fund mentioned in the Schedule to the Patriotic Fund Act, 1881.

4. The Commissioners may expend out of the Victoria Fund, or the income arising therefrom, such reasonable sum or sums of money

as they shall, in their absolute discretion, think fit, in discharge of any costs, charges, and expenses which the Commissioners may incur in or about the execution of these presents, or in or about the distribution of the Victoria Fund, or any other matters directly or indirectly connected with the administration of the trusts hereof.

IN WITNESS whereof the Lord Mayor and his Royal Highness The Duke of Cambridge, His Grace The Duke of Norfolk, Earl Marshal; The Right Honourable Earl Nelson, and Admiral Sir William Montagu Dowell, K.C.B., being the President and three of the Commissioners of the Patriotic Fund, have hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered by
The Right Hon. Sir Stuart Knill, Bart., Lord Mayor, in the presence of
W. J. SOULSBY,
Private Secretary,
Mansion House.

STUART KNILL,
Lord Mayor.

Signed, Sealed and Delivered by

His Royal Highness The Duke of Cambridge,

GEORGE,
President.

His Grace The Duke of Norfolk, Earl Marshal,

NORFOLK,
E.M.

The Right Honourable Earl Nelson,

NELSON,

and

Admiral Sir William Montagu Dowell,

W. M. DOWELL,
Admiral.

in the presence of
J. S. YOUNG, Colonel,
Secretary,
Royal Commission of the Patriotic Fund,
53, Charing Cross, London, S.W.

APPENDIX VI.

19, Old Jewry, E.C.,

22nd February, 1894.

Sir,

In accordance with the request of the Executive and Finance Committee of the Royal Commission of the Patriotic Fund, conveyed to me in Mr. French's letter of the 3rd instant, I have made an estimate of the value of the assets and liabilities of the "Victoria" Relief Fund as shown in the lists of grants and statements which accompanied that letter.

The amount of the subscriptions to the Fund received up to the 3rd of February, 1894, is reported to be £73,182 18s. 4d.; of this sum £66,926 10s. has been invested in securities computed to return an income at a rate which would correspond to £3 3s. a year in respect of each £100 invested. The balance of the amount received which has not already been paid away in allowances and donations remains in the shape of cash in the hands of the Committee.

The main portion of the liabilities undertaken by the Royal Commissioners on account of the Victoria Relief Fund consists of pensions payable to the widows of the men lost in the ship. The youthful age of many of the annuitants indicates that allowances will be claimed for a long term of years, during which it is possible that some of the securities may have to be varied into others, which may bear a lower rate of interest than is payable on account of those now held. The periodical payment of the allowances will require that a certain amount of cash should be in hand from time to time, with the result that the Fund as a whole will carry a somewhat lower average rate of interest than the rate returned upon the invested portion.

Over the course of years that the payment of the allowances may extend, the rate of interest which will be received may, however, be

anticipated to amount on the average fully to two-and-a-half per cent. per annum. The estimate of the extent of the liabilities has been accordingly based upon an assumption that the securities available to satisfy the claims will carry interest at this rate of two-and-a-half per cent. per annum.

The schedule of grants shows that £240 a year has been allotted to 6 Officers' Widows; these pensions inclusive of all arrears paid, or payable, up to 31st December, 1893, have been valued as corresponding to an amount of capital of £4,350. Pensions of £42 a year to 5 Officers' relations are computed to be worth £750. Similarly, pensions amounting to £1,815 3*s*. a year granted to 81 Widows of Seamen and Marines are computed to entail an obligation on the Fund corresponding to £41,300 in capital.

The pensions to Widows have been in all cases valued upon the assumption that the full amount would continue payable during the continuance of their lives. In addition to the above-mentioned pensions, £71 10*s*. a year to 7 male relations of Seamen and Marines is valued at £876, and £357 10*s*. a year to 33 female relations at £4,750. Grants have also been made in 38 cases dependent on joint lives with benefit of continuance to the survivor; these annuities, which for the most part depend upon the lives of elderly people, amount to £443 6*s*. a year, and are valued at £6,700.

An amount of £787 divided among 34 recipients has been made payable in instalments spread over various terms of from two to about five years, and has been valued as corresponding to an amount of £750 in capital.

Donations payable forthwith are reported to amount to £724, and have therefore been estimated to correspond to an immediate liability of this amount. Certain periodical allowances of limited amount are reported as being payable in cases of sickness; the capital value of these, and of similar allowances of small amount which may be granted in future, is estimated at £100.

Allowances of the annual amount of £160, which have been granted to 12 Orphans of Officers have been valued at £980, and others amounting

to £338 a year, payable to 128 Orphans of Seamen and Marines, have been valued at £2,970. Grants, to the extent of £83 4s. a year, which have been made on account of 7 families of Orphans, with a proviso that the allowance would be continued in each case until the youngest surviving Orphan should attain the disqualifying age, have been valued at £750.

The whole of the allowances and grants which are enumerated above are computed to correspond to a liability equivalent to a sum of £65,000 in capital, bearing interest at the rate of two-and-a-half per cent. per annum.

In addition to the above, an amount of £1,900 has been included among the liabilities as representing the cost of the management of the Fund, this estimate being founded on an assumption that four per cent. of the annual income of the Fund would be periodically devoted to this purpose during the continuance of the payment of the allowances.

The total amount of the liabilities of the Fund are consequently placed at the equivalent of a sum of £66,900, that is to say, at an amount somewhat less than the sum of £66,926 10*s.* which has been invested in securities.

The total amount of the Fund reported up to 3rd February, 1894, is, as has been already stated, £73,182 18*s.* 4*d.* Of this amount, £66,926 10*s.* has been invested in the securities detailed in the valuation balance sheet. The date of investment is recent, and the value of the securities has been placed at cost price. The uninvested balance of the Fund amounted to £6,256 8*s.* 4*d.*, but of this sum £684 6*s.* 6*d.* is stated to have been distributed on account of allowances up to the 31st December, 1893. The whole of the above-mentioned balance of £6,256 8*s.* 4*d.* has, however, been included among the assets while, on the other hand, full allowance has been made on the liability side of the account for the total amount of cash payments due up to the 31st December, 1893. This mode of procedure is therefore calculated to show the virtual position of the Fund, as at the 31st December, 1893, as follows: namely, that the total assets amounted to £73,182 18*s.* 4*d.*, and the total liabilities to £66,900.

A surplus balance of assets amounting to £6,282 18*s.* 4*d.* is therefore disclosed, that is to say, a surplus of assets of about nine and

a-third per cent. of the computed liabilities of the Fund. The extent of this surplus is probably no more than the amount advisable to be retained until a decision is arrived at with regard to the allowances of such of the widows as may happen to re-marry; the amount of the allowances which may be sanctioned as outfits for orphans, in cases of sickness, or on account of the expenses of funerals; and, further, the addition which may possibly be made to the allowances of those widows who attain old age.

I am, Sir,

Yours faithfully,

(Signed) ALEX. J. FINLAISON.

Colonel J. S. YOUNG,

Secretary to the

Royal Commission of the Patriotic Fund.

APPENDIX VI—*continued*

"VICTORIA" RELIEF FUND—

LIABILITIES.

	£	s.	d.
£240 a year pensions to 6 Officers' Widows	4,350	0	0
£42 a year pensions to 5 Officers' Relations	750	0	0
£1,815 8s. a year pensions to 81 Widows	41,300	0	0
£71 10s. a year pensions to 7 Male Relations	876	0	0
£357 10s. a year pensions to 33 Female Relations	4,750	0	0
£448 6s. a year pensions to 76 Relations in groups of two lives with benefit of survivorship	6,700	0	0
£211 a year, payable in periodical instalments in respect of 34 grants	750	0	0
Donations payable forthwith	724	0	0
Reserve for allowances payable during Sickness	100	0	0
£160 a year payable on account of 12 Officers' Orphans	980	0	0
£338 a year payable on account of 128 Orphans	2,970	0	0
£88 4s. a year payable on account of 7 families of Orphans	750	0	0
Reserve for Expenses of Management	1,900	0	0
Surplus Balance available as a Reserve for Contingencies	6,282	18	4
	£73,182	18	4

ASSETS.

		£	s.	d.		£	s.	d.
Portsmouth Corporation Stock	3 per cent.	14,863	17	2	at cost	15,000	0	0
Wigan ,, ,,	3 ,,	15,150	0	0	,, ,,	14,998	12	6
Liverpool ,, ,,	3½ ,,	17,130	12	6	,, ,,	20,000	0	0
Manchester Ship Canal Debentures	4 ,,	13,500	0	0	,, ,,	14,630	4	6
Queensland Inscribed Stock	4 ,,	2,230	14	7	,, ,,	2,267	13	0
Cash Balance						6,256	8	4
						£73,182	18	4

(Signed) ALEX. J. FINLAISON,
22nd February, 1894.

NOTE.—Since the above Estimate of Liabilities was made, additional allowances for life to the extent of £239 10s. 0d. per annum, and Gratuities amounting to £586 18s .0d. have been awarded for Dependents other than Widows and Orphans, and claims are still outstanding and may be received in respect of 25 men who were lost. The Cash Balance has been reduced from £6,256 8s. 4d. as above to £4,727 14s. 11d. as at this date.

J. S. YOUNG, *Secretary,*
9th May, 1894.

"VICTORIA"

Scale of Allowances Recommended by Portsmouth Committee,

No. on Books.	Name and Age of Widow.	Rank and Pay of Husband.	No. of Children.	Annual Allowances for Widow					
				Proposed from Victoria Fund.			Greenwich Hospital Fund.		
1	2	3	4	5			6		
	CLASS 1.	Pay of Husband, £27 to £46.		£	s.	d.	£	s.	d.
				Allowances, £26 to £30					
8	Bolding, Ellen ... 34	Private, R.M.L.I.	2	16	18	0	9	2	0
15	Cavanagh, Mary ... 38	Leading Seaman	—	20	8	0	9	2	0
9	Chalkley, Sarah J. ... 49	Stoker	—	19	13	0	9	2	0
12	Copplestone, Ellen ... 37	Stoker	—	20	8	0	9	2	0
22	Edwards, Mary A. ... 27	Stoker	2	17	11	0	11	14	0
23	Flintham, Alice ... 23	A.B.	—	20	3	0	9	2	0
26	Flynn, Alice 25	Stoker	1	20	3	0	9	2	0
36	Lake, Jane 27	A.B.	1	18	3	0	9	2	0
41	Marsh, Emily ... 24	Gunner, R.M.A.	1	17	8	0	9	2	0
45	Nicholls, Matilda ... 20	A.B.	1	20	8	0	9	2	0
51	Philbrick, Sarah J. ... 22	2nd Class Stoker	1	17	13	0	9	2	0
54	Rook, Theresa ... 26	A.B.	1	18	8	0	9	2	0
55	Scambler, Ada E. ... 27	Gunner, R.M.A.	1	18	18	0	9	2	0
71	Wheatley, Annie E. ... 20	Stoker	—	20	18	0	9	2	0
3	Beresford, Emma H. ... 21	A.B.	3	18	8	0	9	2	0
4	Basson, Eleanor ... 20	Stoker	—	20	18	0	9	2	0
10	Cleal, Maria M. ... 26	Corporal, R.M.L.I.	—	18	2	0	10	8	0
14	Collins, Ann 24	Stoker	—	20	3	0	9	2	0
21	Ellis, Kate 28	Gunner, R.M.A.	—	16	18	0	9	2	0
24	Fidler, Amelia A. ... 24	Leading Seaman	1	20	18	0	9	2	0
25	Faro, Eliza T. ... 34	Leading Signalman	5	20	18	0	9	2	0
35	Lofthouse, Gertrude ... 23	A.B.	—	19	13	0	9	2	0
37	Lester, Elizabeth H. 31	Leading Seaman	—	21	8	0	9	2	0
39	Maidment, Mary A. ... 22	Private, R.M.L.I.	1	16	18	0	9	2	0
48	Pickett, Jane R. ... 28	Gunner, R.M.A.	—	16	18	0	9	2	0
66	West, Margaret A. ... 26	A.B.	1	17	13	0	9	2	0
6	Bedwell, Jane S. ... 18	Sick Berth Attendant	—	17	8	0	9	2	0
73	Bussuttil, Caterina ... 33	Stoker	5	20	18	0	9	2	0
7	Bezzina, Ida M. ... 26	Domestic, 1st Class	3	17	8	0	9	2	0
75	Borg, Caterina ... 30	Domestic, 3rd Class	3	16	18	0	9	2	0
76	Burlo, Caterina ... 41	Bandsman	—	18	8	0	9	2	0
79	De Majo, Carmelia ... 30	Bandsman	1	18	3	0	9	2	0
34	Leonard, Mary A. ... 33	Domestic, 2nd Class	—	16	18	0	9	2	0
40	Martinelli, Maria C. ... 31	Stoker	3	20	18	0	9	2	0
80	Preca, Margherita ... 31	Band Corporal	—	19	2	0	10	8	0
50	Portelli, Celestina ... 25	Domestic, 1st Class	2	17	8	0	9	2	0
82	Spiteri, Carmela ... 35	Domestic, 1st Class	4	17	8	0	9	2	0
83	Scibberas, Carmela ... 30	Stoker	3	20	3	0	9	2	0
61	Taylor, Elizabeth ... 33	Bandsman	2	18	3	0	9	2	0
	CLASS 2.	Pay of Husband, £47 to £66.		Allowances, £31 to £35					
11	Cook, Janet 36	Acting Chief Stoker	(a) 4	22	0	0	13	0	0
16	Christmas, Selina ... 31	Acting Chief Stoker	1	22	0	0	13	0	0
13	Croomer, Ellen ... 33	Chief Stoker	1	22	0	0	13	0	0
53	Ralls, Ada J. 22	Chief Cook	—	20	15	0	13	0	0
72	White, Martha J. ... 31	Acting Chief Stoker	—	22	0	0	13	0	0
5	Brown, Louisa ... 27	Leading Stoker	1	21	6	0	11	14	0
18	Dubber, Helen W. ... 30	Painter, 1st Class	3	21	11	0	11	14	0
30	Holness, Amy 30	Sergeant, R.M.L.I.	4	19	16	0	11	14	0
44	Moran, Sarah A. ... 28	Sergeant, R.M.L.I.	1	19	16	0	11	14	0
46	Nightscales, Ellen K. 28	1st Class Petty Officer	—	20	16	0	11	14	0
47	Newman, Caroline H. 33	1st Class Petty Officer	2	20	16	0	11	14	0
49	Privett, Eugenie ... 35	Leading Stoker	(b) 3	21	11	0	11	14	0
28	(c) Gray, Gertrude A. 27	Ship's Corporal, 2nd Class	2	19	6	0	11	14	0
70	Weeks, Matilda S. ... 27	Leading Stoker	3	21	6	0	11	14	0
67	Wheeler, Elizabeth ... 40	1st Class Petty Officer	—	21	11	0	11	14	0
19	Dawes, Clara J. ... 30	Sick Berth Steward	2	20	16	0	11	14	0
27	Galloway, Mary A. ... 24	Yeoman of Signals	—	19	16	0	11	14	0
56	Self, Minnie M. ... 24	Leading Stoker	—	21	6	0	11	14	0
57	Silcock, Martha ... 28	Leading Stoker	1	21	6	0	11	14	0
77	Coxhead, Emilia ... 23	Lithographer	1	22	8	0	9	2	0
60	Taylor, Carmela ... 28	Caulker	4	23	6	0	11	14	0
	CLASS 3.	Pay of Husband, £67 to £86.		Allowances, £36 to £40					
62	Thomas, Jane 36	Chief Stoker	5	24	10	0	13	0	0
17	Driscoll, Ellen E. ... 39	1st Class Petty Officer	6	24	6	0	11	14	0
52	Radan, Lilian L. ... 22	Leading Shipwright	—	28	12	0	10	8	0
64	Tomes, Christina ... 31	Shipwright	4	29	3	0	9	2	0
42	Martin, Alice 32	1st Class Petty Officer	5	24	16	0	11	14	0
74	Banting, Rosina ... 23	Armourer	2	24	6	0	11	14	0
81	Scicluna, Elizabeth ... 30	Leading Shipwright	—	29	7	0	10	8	0
	CLASS 4.	Pay of Husband, £87 to £106.		Allowances, £41 to £45					
58	Stanley, Ellen ... 30	Engine Room Artificer	1	31	5	0	13	0	0
68	White, Annie 35	Chief Petty Officer	4	28	0	0	13	0	0
33	(d) Lee, Catherine E. 38	Domestic, 1st Class	2	35	18	0	9	2	0
20	Evans, Catherine ... 33	Chief Writer	3	29	0	0	13	0	0
43	Moors, Caroline ... 26	Engine Room Artificer, 3rd Class ..	1	32	0	0	13	0	0
63	Thomas, Frances M. ... 36	Carpenter's Mate	2	29	6	0	11	14	0
69	Whitman, Esther ... 40	Chief Petty Officer	3	28	10	0	13	0	0
78	Cacciottolo, Concetta 35	Carpenter's Mate	1	29	6	0	11	14	0
	CLASS 5.	Pay of Husband, £107 and upwards.		Allowances, £46 to £50					
1	Armstrong, Annie L. 31	Chief Engine Room Artificer ...	2	37	0	0	13	0	0
32	Jones, Letitia 43	Chief Engine Room Artificer ...	3	37	0	0	13	0	0
59	Sillick, Harriet S. ... 34	Engine Room Artificer	3	34	15	0	13	0	0
65	Vittles, Elizabeth ... 33	Ship's Steward	4	36	0	0	13	0	0
2	Armstrong, Mary E. ... 32	Engine Room Artificer	—	34	0	0	13	0	0
29	(f) Holloway, Sarah 27	Domestic, 1st Class	2	40	18	0	9	2	0

RELIEF FUND.

2ND JANUARY, 1894, AND ADOPTED WITH EFFECT AS FROM 1ST NOVEMBER, 1893.

Total. 7 £	s.	d.	Total for Children from Victoria and Greenwich Hospital Funds combined. 8 £	s.	d.	Total Income of Widow. 9 £	s.	d.	Allotment or remittance by Husband where known. 10	Scale of Allowances for Widows on Patriotic, "Captain," & "Eurydice" Funds, *who have no allowances from Greenwich Hospital Funds.* 11 £ s. d.	Difference between cols. 7 & 11, viz., excess of Income of Victoria Fund Widows, *excluding Allowances for Children* over Allowances to Widows on Patriotic, "Captain," and "Eurydice" Funds. 12 £	s.	d.	Remarks.
26	0	0	13	0	0	39	0	0	15 per annum		13	0	0	
29	10	0	—	—	—	29	10	0	—		16	10	0	
28	15	0	—	—	—	28	15	0	24 per annum		15	15	0	
29	10	0	—	—	—	29	10	0	24 ,,		16	10	0	
29	5	0	13	0	0	42	5	0	—		16	5	0	
29	5	0	—	—	—	29	5	0	24 per annum		16	5	0	
29	5	0	6	10	0	35	15	0	—		16	5	0	
27	5	0	2	12	0	29	17	0	18 per annum		14	5	0	
26	10	0	6	10	0	33	0	0	—	13 0 0 per annum	13	10	0	
29	10	0	6	10	0	36	0	0			16	10	0	
26	15	0	6	10	0	33	5	0	24 per annum		13	15	0	
27	10	0	6	10	0	34	0	0	18 ,,		14	10	0	
28	0	0	6	10	0	34	10	0	—		15	0	0	
30	0	0	—	—	—	30	0	0	—		17	0	0	
27	10	0	19	10	0	47	0	0	21 per annum		14	10	0	
30	0	0	—	—	—	30	0	0	—		17	0	0	
28	10	0	—	—	—	28	10	0	21 per annum	14 6 0 ,,	14	4	0	
29	5	0	—	—	—	29	5	0	24 ,,		16	5	0	
26	0	0	—	—	—	26	0	0	—		13	0	0	
30	0	0	6	10	0	36	10	0	—		17	0	0	
30	0	0	32	10	0	62	10	0	27 per annum		17	0	0	
28	15	0	—	—	—	28	15	0	—		15	15	0	
30	10	0	—	—	—	30	10	0	27 per annum		17	10	0	
26	0	0	6	10	0	32	10	0	—		13	0	0	
26	0	0	—	—	—	26	0	0	12 per annum		13	0	0	
26	15	0	6	10	0	33	5	0	—	13 0 0 ,,	13	15	0	
26	10	0	—	—	—	26	10	0	—		13	10	0	
30	0	0	32	10	0	62	10	0			17	0	0	
26	10	0	19	10	0	46	0	0			13	10	0	
26	0	0	19	10	0	45	10	0			13	0	0	
27	10	0	—	—	—	27	10	0			14	10	0	
27	5	0	6	10	0	33	15	0	Widows resident at Malta, no particulars forthcoming.		14	5	0	
26	0	0	—	—	—	26	0	0			13	0	0	
30	0	0	19	10	0	49	10	0			17	0	0	
29	10	0	—	—	—	29	10	0		14 6 0 ,,	15	4	0	
26	10	0	13	0	0	39	10	0			13	10	0	
26	10	0	26	0	0	52	10	0		13 0 0 ,,	13	10	0	
29	5	0	19	10	0	48	15	0			16	5	0	
27	5	0	13	0	0	40	5	0			14	5	0	
35	0	0	23	8	0	58	8	0	—		18	2	0	(a) 1 child over age.
35	0	0	7	16	0	42	16	0	—		18	2	0	
35	0	0	7	16	0	42	16	0	—	16 18 0 ,,	18	2	0	
33	15	0	—	—	—	33	15	0	—		16	17	0	
35	0	0	—	—	—	35	0	0	30 per annum		18	2	0	
33	0	0	7	16	0	40	16	0	30 ,,		17	8	0	
33	5	0	23	8	0	56	13	0	21 ,,		17	13	0	
31	10	0	31	4	0	62	14	0	30 ,,		15	18	0	
31	10	0	7	16	0	39	6	0	30 ,,		15	18	0	
32	10	0	—	—	—	32	10	0	—		16	18	0	
32	10	0	15	12	0	48	2	0	—		16	18	0	
33	5	0	15	12	0	48	17	0	24 per annum	15 12 0 ,,	17	13	0	(b) 1 child in Royal Victoria Patriotic Asylum.
31	0	0	15	12	0	46	12	0	24 ,,		15	8	0	(c) Placed in Class 2 instead of Class 1, on the ground that the position of the husband "required a somewhat increased pension."
33	0	0	23	8	0	56	8	0			17	8	0	
33	5	0	—	—	—	33	5	0	—		17	13	0	
32	10	0	15	12	0	48	2	0	42 per annum		16	18	0	
31	10	0	—	—	—	31	10	0	—		15	18	0	
33	0	0	—	—	—	33	0	0	—		17	8	0	
33	0	0	7	16	0	40	16	0	—		17	8	0	
31	10	0	6	10	0	38	0	0	—	13 0 0 ,,	18	10	0	
35	0	0	31	4	0	66	4	0	39 per annum	15 12 0 ,,	19	8	0	
37	10	0	39	0	0	76	10	0	—	16 18 0 ,,	20	12	0	
36	0	0	46	16	0	82	16	0	—	15 12 0 ,,	20	8	0	
39	0	0	—	—	—	39	0	0	48 per annum	14 6 0 ,,	24	14	0	
38	5	0	26	0	0	64	5	0	48 ,,	13 0 0 ,,	25	5	0	
36	10	0	39	0	0	75	10	0	—	15 12 0 ,,	20	18	0	
36	0	0	15	12	0	51	12	0	42 per annum	15 12 0 ,,	20	8	0	
39	15	0	—	—	—	39	15	0	48 ,,	14 6 0 ,,	25	9	0	(d) Placed in Class 4 instead of Class 1, on the ground that although the pay of the husband was only £28 17s. 11d. per annum, it was understood he also received private money, and was in fact in receipt of upwards of £100 per annum.
44	5	0	7	16	0	52	1	0	72 ,,	18 4 0 ,,	26	1	0	
41	0	0	31	4	0	72	4	0	—	16 18 0 ,,	24	2	0	
45	0	0	13	0	0	58	0	0	—	13 0 0 ,,	32	0	0	
42	0	0	23	8	0	65	8	0	60 per annum	18 4 0 ,,	23	16	0	
45	0	0	7	16	0	52	16	0	—	18 4 0 ,,	26	16	0	
41	0	0	15	12	0	56	12	0	60 per annum	15 12 0 ,,	25	8	0	(e) Included a remittance for support of mother who, in consequence, has been granted an allowance of £9 2s. per annum for life.
41	10	0	23	8	0	64	18	0	54 ,,	16 18 0 ,,	24	12	0	
41	0	0	7	16	0	48	16	0	—	15 12 0 ,,	25	8	0	
50	0	0	15	12	0	65	12	0	(e) 96 per annum		31	16	0	(f) Placed in Class 5 instead of Class 1, on the ground that although the pay of the husband was only £28 17s. 11d. per annum, it was understood he also received private money, and was in fact in receipt of £100 per annum.
50	0	0	23	8	0	73	8	0	—		31	16	0	
47	15	0	23	8	0	71	3	0	—	18 4 0 ,,	29	11	0	
49	0	0	31	4	0	80	4	0	108 per annum		30	16	0	
47	0	0	—	—	—	47	0	0	—		28	16	0	
50	0	0	13	0	0	65	0	0	—	13 0 0 ,,	37	0	0	

APPENDIX VIII.

This Indenture made the thirtieth day of March, one thousand eight hundred and ninety four, BETWEEN Robert Barnes, Esquire, late Mayor of the Borough of Portsmouth, of the one part, and The Commissioners of the Patriotic Fund (hereinafter called "The Commissioners") of the other part.

WHEREAS on the twenty-second day of June, one thousand eight hundred and ninety three, H.M.S. "Victoria" foundered off Tripoli, on the Coast of Syria, when the Commander-in-Chief in the Mediterranean, Vice-Admiral Sir George Tryon, and three hundred and sixty-one Officers, Seaman, and Marines of Her Majesty's Navy were drowned.

AND WHEREAS at a Public Meeting held on the twenty-seventh day of June One thousand eight hundred and ninety-three, in the Town Hall in the said Borough of Portsmouth (the said Robert Barnes the then Mayor of the said Borough being in the chair), it was resolved to open a Fund in the said Borough of Portsmouth for the Relief of the Widows, Orphans, and dependent Relatives of those who lost their lives by the foundering of H.M.S. "Victoria," as aforesaid.

AND WHEREAS a Fund was opened by the said Robert Barnes as the then Mayor accordingly, with the assistance of a Committee appointed at the said Public Meeting, and the donations subscribed thereto now amount to the sum of Five thousand five hundred and thirty-five pounds.

AND WHEREAS it is proposed to intrust the distribution of the fund so formed to the Comissioners, and for that purpose the aforesaid sum of Five thousand five hundred and thirty-five pounds has been handed over to them and further donations which may be hereafter subscribed for the purposes of the said Fund may hereafter be handed over to the Commissioners, and the Commissioners have agreed to take over and to distribute and administer the said Fund and any such further donations thereto as aforesaid in accordance with the agreements and declarations hereinafter contained.

NOW this Indenture witnesseth that in consideration of the premises it is hereby agreed and declared as follows :

The Commissioners shall stand possessed of the said sum of Five thousand five hundred and thirty five pounds, and any such further donations as shall be subscribed to the said Fund as aforesaid when the same shall have been handed over to the Commissioners (all which sums and the investments thereof are hereinafter together referred to as "The Portsmouth 'Victoria' Fund"), upon and for the same trusts, intents and purposes and with under and subject

to the same powers, provisions, obligations and conditions as are declared, expressed and contained in an Indenture dated the twenty-first day of September, One thousand eight hundred and ninety-three, and made between The Right Honorable Sir Stuart Knill, Baronet, Lord Mayor of the City of London, of the one part, and the Commissioners of the other part, with regard to the Fund therein recited to have been raised under the auspices of the said Lord Mayor and by him intrusted to the Commissioners for distribution and administration in accordance with the agreements and declarations in such last mentioned Indenture expressed and contained.

AND it is hereby agreed and declared that the "Portsmouth 'Victoria' Fund" shall at all times hereafter be deemed to be and administered as part of the Fund so as aforesaid raised under the auspices of the said Lord Mayor.

IN WITNESS whereof the said Robert Barnes and His Royal Highness the Duke of Cambridge, Earl Nelson, Earl of Clanwilliam and Admiral Sir William Montague Dowell, being the President and three of the Commissioners of the Patriotic Fund, have hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered by the above named Robert Barnes, in the presence of

ALEX. HELLARD,
Town Clerk,
Portsmouth.

ROBERT BARNES. (L.S.)

Signed, Sealed and Delivered by

His Royal Highness The Duke of Cambridge, GEORGE, President. (L.S.)

Earl Nelson, NELSON. (L.S.)

Earl of Clanwilliam, CLANWILLIAM. (L.S.)

and

Admiral Sir William Montagu Dowell, W. M. DOWELL. (L.S.)

in the presence of

J. S. YOUNG,
Colonel,
Secretary Royal Commission of the Patriotic Fund.

Dr.

RECEIPTS.		CASH.	Government Securities.		Debentures. Railways, Wat Works, &c.	
			Home.	Indian and Colonial.	Home.	India and Colon
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£	£ s
To Balance of Securities on 1st January, 1893, viz.—						
Consols, 2¾ per cent.	...	...	2,071 4 9			
Canada 4 per cent. (Reduced) Bonds redeemable 1st January, 1910	17,600 0 0					
Cape of Good Hope 4½ per cent. Bonds redeemable £28,800 by 15th October, 1897, and £1000 by 15th April, 1900	29,800 0 0					
New South Wales 3½ per cent. Inscribed Stock, 1918	6,000 0 0					
Queensland 4 per cent. Inscribed Stock, 1915 . .	16,047 1 9					
South Australian 4 per cent. Bonds, 1907-29 . .	34,300 0 0					
,, ,, Inscribed Stock, 1917-36	6,525 6 5			110,272 8 2		
Bristol Water Works 3½ per cent. perp. Deben. Stk. .	5,000 0 0					
Great Western Railway 4 per cent. Debenture Stock	69,504 0 0					
London, Brighton and South Coast Railway 4½ per cent. Perpetual Debenture Stock . . .	15,000 0 0					
North Eastern Railway 4 per cent. Debenture Stock	60,000 0 0				149,504	
Estimated Capital Value on 14th February, 1953, of Sinking Fund in the East India Railway Annuity, Class C	36,070 0 0					
East Indian Railway Deferred Annuity, Class D, per Act 55 Vict. Cap. X, part II— Capital estimated to be forthcoming on 14th February, 1953, from the Sinking Fund provided for holders thereof	54,105 0 0					
Great Indian Peninsula Railway 4 per cent. Debenture Stock	8,800 0 0					98,975
,, Cash proceeds of Cape of Good Hope 4½ per cent. Bonds paid off 15th April, 1893		500 0 0				
,, Securities transferred from Light Brigade (Balaclava) Relief Fund Capital Account, on 1st May, 1893, in exchange for Cape of Good Hope 4½ per cent. Bonds, as per contra, viz.:— Consols 2¾ per cent.		...	2,980 10 7			
,, Cash, proceeds of Sale of £960 16s. 8d. 2¾ per cent. Consols, as per contra		950 0 0				
,, Cash transferred from Capital Account of—						
Royal Victoria Patriotic Asylum	For Securities transferred by this Fund as per contra.	3,455 13 11				
,, ,, ,, Reserve Fund .		828 19 11				
Rodriguez Fund		400 0 0				
"Captain" Relief Fund		400 0 0				
Royal Naval Relief ,, ...		253 9 3				
Zulu War ,, ...		300 0 0				
"Soldiers' Effects" ,, ...		3,400 0 0				
"Eurydice Relief" ,, ...		97 14 5				
Zervudachi ,, ...		57 9 2				
Roman Catholic Orphans		50 4 3				
Thurlow		21 16 0				
"Victoria" Relief Fund		2,297 13 0				
Total	£	13,012 19 11	5,051 15 4	110,272 8 2	149,504	98,97

FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH.	Government Securities.		Debentures. Railways, Water Works, &c.	
		Home.	Indian and Colonial.	Home.	Indian and Colonial
	£ s. d.	£ s. d.	£ s. d.	£	£ s. d.
Cape of Good Hope Bonds paid off 15th April, 1893 . . .	...	...	500 0 0		
Securities transferred on 1st May, 1893, to Light Brigade (Balaclava) Relief Fund, in exchange for 2¾ per cent. Consols, as per contra, viz.—	...				
Cape of Good Hope 4½ per cent. Bonds (redeemable £1,800 on 15th October, 1897, and £1,000 on 15th October, 1900).	...	...	2,800 0 0		
Sale of 2¾ per cent. Consols on 2nd May	...	960 16 8			
Securities transferred on 30th December, 1893 :—					
To R.V.P. Asylum Endowment Fund—					
South Australian 4 per cent. Inscribed Stock . .	...	...	3,383 15 10		
,, R.V.P. Asylum Reserve Fund—					
South Australian 4 per cent. Inscribed Stock . .	...	...	811 14 11		
,, Rodriguez Fund—					
South Australian 4 per cent. Bonds	...	...	400 0 0		
,, "Captain" Relief Fund—					
South Australian 4 per cent. Bonds	...	...	400 0 0		
,, Royal Naval Relief Fund—					
Queensland 4 per cent. Inscribed Stock . . .	...	...	246 1 7		
,, Zulu War Fund—					
South Australian 4 per cent. Bonds	...	...	300 0 0		
,, "Soldiers' Effects" Fund—					
South Australian 4 per cent. Bonds	...	...	3,400 0 0		
,, "Eurydice" Relief Fund—					
Queensland 4 per cent. Inscribed Stock . . .	...	...	*94 9 5		
,, Zervudachi Fund—					
2¾ per Cent. Consols	...	58 3 8			
,, Roman Catholic Orphan's Fund—					
Queensland 4 per cent. Inscribed Stock . . .	...	...	48 15 0		
,, Thurlow Fund—					
Queensland 4 per cent. Inscribed Stock . . .	...	...	21 3 4		
,, "Victoria" Relief Fund—					
Queensland 4 per cent. Inscribed Stock . . .	...	...	2,230 14 7		
Cash transferred to General Fund (Income) Account during the year	13,012 19 11				
	13,012 19 11	1,019 0 4	14,636 14 8		
Balance of Securities on 31st Dec., 1893, viz. :— £ s. d.					
Consols 2¾ per cent.	...	4,032 15 0			
Canada 4 per cent. (Reduced) Bonds, redeemable 1st January, 1910 . . . . . 17,600 0 0					
Cape of Good Hope 4½ per cent. Bonds (Redeemable by 15th October, 1897 . . . . . 26,500 0 0					
New South Wales 3½ per cent. Inscribed Stock, 1918 6,000 0 0					
Queensland 4 per cent. Inscribed Stock (1915) . 13,405 17 10					
South Australian 4 p. c. Bonds (1907-29) . . 29,800 0 0					
,, ,, Inscribed Stock (1917-36) . 2,329 15 8			95,635 13 6		
Bristol Water Works 3½ p. c. Perp. Debenture Stock 5,000 0 0					
Great Western Railway 4 per cent. Debenture Stock 69,504 0 0					
London, Brighton, and South Coast Railway 4½ per cent. Perpetual Debenture Stock . . . 15,000 0 0					
North-Eastern Railway 4 per cent. Debenture Stock 60,000 0 0				149,504	
Estimated Capital Value on 14th February, 1953 of Sinking Fund in East Indian Railway Annuity, Class C 86,070 0 0					
East Indian Railway Deferred Annuity, Class D, per Act 55 Vict. Cap. X, part II— Capital estimated to be forthcoming on 14th February, 1953, from the Sinking Fund provided for holders thereof 54,105 0 0					
Great Indian Peninsula Railway 4 per cent. Debenture Stock 8,800 0 0					98,975 0 0
Total .	£ 13,012 19 11	5,051 15 4	110,272 8 2	149,504	98,975 0 0

* This amount should have been £94 17*s.* 5*d.*, error in calculation. Adjustment of error will be made in Accounts for 1894.

(*Signed*) J. S. YOUNG, Colonel, *Secretary.*

Examined and found correct, (*Signed*) GEORGE H. TRIPP. *22nd March, 1894.*

APPENDIX

PATRIOTIC

Dr. INCOME

RECEIPTS.	£	s.	d.	£	s.	d.
To Dividends received on the undermentioned Securities, viz:						
£2,071 4*s.* 9*d.* Consols, 2¾ per cent. (Jan. £14 4 9; April 14 4 9; July 28 2 6; Oct. 28 2 6)				84	14	6
£4,090 18*s.* 8*d.* ,, ,,						
£17,600 0*s.* 0*d.* Canada 4 per cent. (Reduced) Bonds				684	18	8
£29,800 0*s.* 0*d.* Cape of Good Hope 4½ per cent. Bonds (£650 18 10)				1,229	16	1
£26,500 0*s.* 0*d.* ,, ,, ,, ,, ,, (578 17 3)						
£6,000 0*s.* 0*d.* New South Wales 3½ per cent. Inscribed Stock				210	0	0
£16,047 1*s.* 9*d.* Queensland 4 per cent. Inscribed Stock				641	17	8
£34,300 0*s.* 0*d.* South Australian 4 per cent. Bonds				1,334	16	10
£6,525 6*s.* 5*d.* ,, ,, Inscribed Stock				253	18	10
£5,000 0*s.* 0*d.* Bristol Water Works 3½ per cent. Perp. Debenture Stock.				170	8	10
£69,504 0*s.* 0*d.* Great Western Railway 4 per cent. Debenture Stock				2,707	15	2
£15,000 0*s.* 0*d.* London Brighton and South Coast Railway 4½ per cent. Perpetual Debenture Stock				657	8	5
£60,000 0*s.* 0*d.* North Eastern Railway 4 per cent. Debenture Stock				2,337	10	0
£1,623 3*s.* 0*d.* per ann. E. Indian Ry. Annuity, Class C	£811 11 6					
Less—Income Tax	£20 5 9					
,, Management	3 7 8					
,, Sinking Fund at 2*s.* 6*d.* in the £, per Act 55 Vict. c. X.	101 8 11					
	125 2 4			686	9	2
£1,623 3*s.* 0*d* per ann. E. Indian Ry. Annuity, Class C	£811 11 6					
Less—Income Tax	£23 18 5					
,, Management	3 7 8					
,, Sinking Fund at 2*s.* 6*d.* in the £ per Act, 55 Vic. c. X.	101 8 11					
	128 10 0			683	1	6
£54,105 East India Railway 4 per cent. Deferred Annuity, Class D. January	£1,826 0 10			1,369	10	8
Less—Income Tax	£45 13 0					
,, Sinking Fund at 11*s.* 3*d.* for every £4 of Interest under Sec. 6 of Act 55 Vict. cap. X.	152 3 5					
	197 16 5			1,628	4	5
£54,105 East India Railway 4 per cent. Deferred Annuity, Class D, July	£1,406 14 7					
Less—Income Tax	£41 0 7					
,, Sinking Fund at 11*s.* 3*d.* for every £4 of Interest under Sec. 6 of Act 55 Vict. cap. X.	152 3 5					
	193 4 0			1,213	10	7
				2,841	15	0
£8,800 0*s.* 0*d.* Great Indian Peninsula Railway 4 per cent. Debenture Stock				342	9	4
						14,867 0 0
,, Income Tax repaid by Commissioners of Inland Revenue				...		383 9 0
,, Transfers from Special Funds towards Cost of Management, viz.:—						
"Captain" Relief Fund				54	10	0
"Eurydice" Relief Fund				23	0	0
Royal Naval Relief Fund				12	0	0
Zulu War Fund				41	10	0
"Atalanta" Relief Fund				12	0	0
"Soldiers' Effects" Fund				174	10	0
Ashantee War Fund				3	10	0
Royal Victoria Patriotic Asylum				271	10	0
Light Brigade Relief Fund				4	0	0
County of Forfar Fund				1	0	0
						597 10 0
,, Cash transferred from General Fund Capital Account during the year				...		13,012 19 11
,, Loan from Bank of England 29th December				...		1,000 0 0
						29,860 18 11
,, Balance on 31st December, 1893	£232 1 2					
Less—Cash in Office	9 11 11½					
						222 9 2½
Total					£	30,083 8 1½

FUND.

ACCOUNT, 1893. *Cr.*

EXPENDITURE.	£ s. d.	£ s. d.
By Balance on 1st January, 1893	1,528 14 5	
Less—Cash in Office	9 8 0½	
		1,519 6 4½
,, Amount of Allowances to Widows and Orphans of other than Officers :—		
Army (including amount paid to Royal Cambridge Asylum for three Widows, £85 12*s.* 8*d.*)	13,733 16 8	
Navy	4,137 3 6	
		17,871 0 2
,, Special Grant to Children in Orphanages at Norwood, Dublin, and Torquay on the occasion of the Marriage of H.R.H. The Duke of York	...	3 19 0
,, Amount of Allowances to Widows and Orphans of Officers	...	2,488 15 6
,, ,, of Allowances to Orphans of Officers of other Wars than Russian	...	12 0 0
,, Subscriptions to Hospitals, &c.	...	20 0 0
,, Expenses of Management, viz.:—		
Salaries—Office	1,406 1 10	
Amount paid to Clerical Staff for Special Funds for year 1893	21 0 0	
Stationery, Books, and Printing	118 1 7½	
Postage—Office	81 8 3½	
Travelling Expenses	11 0 10	
Fee for Auditing Accounts for 1892	50 0 0	
Fee for Preparation of Estimate of Assets and Liabilities	26 5 0	
Miscellaneous Office Expenses (Housekeeper, Fuel, Light, &c.)	74 7 2	
		1,788 4 9
,, Commission on Post Office Orders		93 0 3
,, Allowances to Retired Officers of Office Staff		766 13 10
,, Interest on Loan £1,000, as per contra		0 8 3
,, Repayment of Loan to Bank of England, 3rd January		5,520 0 0
Total	£	30,083 8 1½

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Subject to observations in Report—examined and found correct,
(Signed) GEORGE H. TRIPP,
22nd March, 1894.

RODRIGUEZ

Dr. CAPITAL

RECEIPTS.	CASH.	Government Securities.	Debentures.
		Colonial.	Railways, Water Works, &c. Home.
	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz.:—			
Bristol Water Works 3½ per cent. Perp. Deb. Stock . .	...	...	12,500 0 0
New Zealand 3½ per cent. Inscribed Stock (1940) . £571 6 8			
South Australian 4 per cent. Bonds (1908-9) . . 900 0 0		1,471 6 8	
,, Cash transferred from Income Account	400 0 0		
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:—			
South Australian 4 per cent. Bonds, (1909)	...	400 0 0	
Total . . £	400 0 0	1,871 6 8	12,500 0 0

Dr. INCOME

RECEIPTS.	£ s. d.	£ s. d.
To Balance on 1st January, 1893	...	40 3 9
To Dividends received on the undermentioned Securities, viz.:—		
£12,500 0s. 0d. Bristol Water Works 3½ per cent. Perp. Debenture Stock .	426 2 3	
£571 6s. 8d. New Zealand 3½ per cent. Inscribed Stock	19 19 10	
£900 0s. 0d. South Australian 4 per cent. Bonds	35 0 6	
		481 2 7
,, Income Tax repaid by Commissioners of Inland Revenue		11 12 8
Total . . £		532 19 0

X.

FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.		CASH.	Government Securities.	Debentures.
			Colonial.	Railways, Water Works, &c.
			Home.	
		£ s. d.	£ s. d.	£ s. d.
By Cash transferred to General Fund, Capital Account, for £400 South Australian 4 per cent. Bonds as per contra . .		400 0 0		
		400 0 0	. .	...
By Balance of Securities on 31st December, 1893, viz.:—				
Bristol Water Works 3½ per cent. Perp. Deb. Stock . . .		...	...	12,500 0 0
New Zealand 3½ per cent. Inscribed Stock (1940) .	£571 6 8			
South Australian 4 per cent. Bonds (1908-9) . .	1,300 0 0			
			1,871 6 8	
Total . £		400 0 0	1,871 6 8	12,500 0 0

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Grants to Widows and Orphans	90 11 6
,, Cash transferred to Capital Account	400 0 0
	490 11 6
,, By Balance on 31st December, 1893	42 7 6
Total . . £	532 19 0

(Signed) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct.
(Signed) GEORGE H. TRIPP.
22nd March, 1894.

"CAPTAIN"

Dr. CAPITAL

RECEIPTS.		CASH.	Government Securities. Colonial.	Railway Stock. Indian.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz.:—				
Canada 4 per cent. Inscribed Stock (1910)	11,915 0 0			
Ceylon 4 per cent. Inscribed Stock (1934)	564 0 10			
New South Wales 5 per cent. Bonds (1889-1900)	6,700 0 0			
New South Wales 3½ per cent. Inscribed Stock (1918)	3,300 0 0			
South Australian 4 per cent. Bonds (1899-1909)	2,500 0 0			
South Australian 4 per cent. Inscribed Stock (1917-1936)	925 18 6			
			25,904 19 4	
,, Madras Railway 5 per cent. Stock		..	...	5,630 0 0
,, Cash transferred from Income Account		400 0 0		
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:— South Australian 4 per cent. Bonds (1909)		...	400 0 0	
Total	£	400 0 0	26,304 19 4	5,630 0 0

Dr. INCOME

RECEIPTS.		£ s. d.
To Balance on 1st January, 1893		55 9 5
,, Dividends received on undermentioned Securities, viz.:—	£ s. d.	
£11,915 Canada 4 per cent. Inscribed Stock	463 13 10	
£564 0s. 10d. Ceylon 4 per cent. Inscribed Stock	21 19 0	
£6,700 New South Wales 5 per cent. Bonds	325 18 7	
£3,300 New South Wales 3½ per cent. Inscribed Stock	115 10 0	
£2,500 South Australian 4 per cent. Bonds	97 5 10	
£925 18s. 6d. South Australian 4 per cent. Inscribed Stock	36 0 7	
£5,630 Madras Railway 5 per cent. Stock	273 17 6	
		1,334 5 4
,, Income Tax repaid by Commissioners of Inland Revenue		31 2 4
Total	£	1,420 17 1

RELIEF FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.				CASH.			Government Securities. Colonial.			Railway Stock. Indian.		
				£	s.	d.	£	s.	d.	£	s.	d.
By Cash transferred to General Fund, Capital Account, for £400 South Australian 4 per cent. Bonds as per contra				400	0	0						
				400	0	0	...			...		
By Balance of Securities on 31st Dec., 1893, viz.:—	£	s.	d.									
Canada 4 per cent. Inscribed Stock (1910)	11,915	0	0									
Ceylon 4 per cent. Inscribed Stock (1934)	564	0	10									
New South Wales 5 per cent. Bonds (1889-1900)	6,700	0	0									
New South Wales 3½ per cent. Inscribed Stock (1918)	3,300	0	0									
South Australian 4 per cent. Bonds (1899-1909)	2,900	0	0									
South Australian 4 per cent. Inscribed Stock (1917-36)	925	18	6									
							26,304	19	4			
Madras Railway 5 per cent. Stock				...			...			5,630	0	0
Total			£	400	0	0	26,304	19	4	5,630	0	0

ACCOUNT. *Cr.*

EXPENDITURE.	£	s.	d.
By Payment of Allowances to Widows, Orphans and Relatives	955	1	0
,, Fee for preparation of Estimate of Assets and Liabilities	5	5	0
,, Commission on Post Office Orders	5	7	2
,, Cash transferred to General Fund Income Account on 30th December, viz.:— Proportion of Cost of Management at 4 per cent. on Income	54	10	0
,, Cash transferred to Capital Account	400	0	0
	1,420	3	2
,, Balance on 31st December, 1893	0	13	11
Total £	1,420	17	1

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct,
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

APPENDIX

"EURYDICE"

CAPITAL

Dr.

RECEIPTS.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
To Balance of Securities on 1st January, 1893, viz.:—		
Queensland 4 per cent. Inscribed Stock, (1915)	...	14,472 13 3
,, Cash transferred from Income Account	97 14 5	
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:—		
Queensland 4 per cent. Inscribed Stock (1915)	...	*94 9 5
* This amount should have been £94 17*s.* 5*d.*,, error in calculation. Adjustment of error will be made in Accounts for 1894,		
Total £	97 14 5	14,567 2 8

INCOME

Dr.

RECEIPTS.	£ s. d.
To Dividends received on the undermentioned Securities, viz.:—	
£14,472 13*s.* 3*d.* Queensland 4 per cent. Inscribed Stock	578 18 0
Total £	578 18 0

APPENDIX

ROYAL NAVAL

CAPITAL

Dr.

RECEIPTS.		CASH.	Government Securities. Colonial.
	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz.:—			
Ceylon 4 per cent. Inscribed Stock (1934)	235 0 4		
Queensland 4 per cent. Inscribed Stock (1915)	5,973 16 7		
,, ,, ,, (1924)	736 15 0		
South Australian 4 per cent. Bonds (1908-29)	600 0 0		7,545 11 11
,, Cash transferred from Income Account		253 9 3	
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:—			
Queensland 4 per cent. Inscribed Stock (1915)		...	246 1 7
Total £		253 9 3	7,791 13 6

INCOME

Dr.

RECEIPTS.	£ s. d.	£ s. d.
To Dividends received on the undermentioned Securities, viz.:—		
£235 0*s.* 4*d.* Ceylon 4 per cent. Inscribed Stock	9 2 11	
£6,710 11*s.* 7*d.* Queensland 4 per cent. Inscribed Stock	268 8 6	
£600 0*s.* 0*d.* South Australian 4 per cent. Bonds	23 7 0	300 18 5
,, Income Tax repaid by Commissioners of Inland Revenue		0 16 8
Total		301 15 1

XII.

RELIEF FUND.

ACCOUNT, 1893.

Cr.

PAYMENTS.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
By Cash transferred to General Fund Capital Account for £94 9*s.* 5*d.* Queensland 4 per cent. Inscribed Stock, as per contra . .	97 14 5	
	97 14 5	...
By Balance of Securities on 31st December, 1893, viz. :— Queensland 4 per cent. Inscribed Stock (1915)	...	14,567 2 8
Total . . . £	97 14 5	14,567 2 8

ACCOUNT.

Cr.

EXPENDITURE.	£ s. d.
By payment of Allowances to Widows and Orphans	328 11 11
,, ,, ,, ,, of Officers	122 9 10
,, Fee for preparation of Estimate of Assets and Liabilities	5 5 0
,, Commission on Post Office Orders	1 16 10
,, Cash transferred to General Fund, Income Account, on 30th December, viz :— Proportion of Cost of Management at 4 per cent. on Income	23 0 0
,, Cash transferred to Capital Account	97 14 5
Total . . £	578 18 0

(Signed) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct,
(Signed) GEORGE H. TRIPP,
22nd March, 1894.

XIII.

RELIEF FUND.

ACCOUNT, 1893.

Cr.

PAYMENTS.				CASH. £ s. d.	Government Securities. Colonial. £ s. d.
By Cash transferred to General Fund, Capital Account, for £246 1*s.* 7*d.* Queensland 4 per cent. Inscribed Stock, as per contra . . .				253 9 3	
By Balance of Securities on 31st December, 1893, viz. :—	£	s.	d.	253 9 3	...
Ceylon 4 per cent. Inscribed Stock (1934)	235	0	4		
Queensland 4 per cent. Inscribed Stock (1915) . .	6,219	18	2		
,, ,, ,, (1924) . . .	736	15	0		
South Australian 4 per cent. Bonds (1908-29) . . .	600	0	0		
					7,791 13 6
Total . . £				253 9 3	7,791 13 6

ACCOUNT.

Cr.

EXPENDITURE.	£ s. d.
By Payment of Allowances to Widows and Orphans	36 1 6
,, Commission on Post Office Orders	0 4 4
,, Cash transferred to General Fund, Income Account, on 30th December, viz. :— Proportion of Cost of Management at 4 per cent. on Income	12 0 0
,, Cash transferred to Capital Account	253 9 3
Total . . £	301 15 1

(Signed) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct,
(Signed) GEORGE H. TRIPP,
22nd March, 1894

APPENDIX

ZULU WAR

CAPITAL

Dr.

RECEIPTS.	£ s. d.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
To Balance of Securities on 1st January, 1893, viz.:—			
South Australian 4 per cent. Bonds (1907-9)	14,000 0 0		
Victoria 4½ per cent. Bonds (1904)	10,800 0 0		
			24,800 0 0
,, Cash transferred from Income Account		300 0 0	
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:—			
South Australian 4 per cent. Bonds (1909)		...	300 0 0
Total £		300 0 0	25,100 0 0

Dr.

INCOME

RECEIPTS.	£ s. d.	£ s. d.
To Balance on 1st January, 1893	...	53 18 6
,, Dividends received on the undermentioned Securities, viz.:—		
£14,000 South Australian 4 per cent. Bonds	544 16 8	
£10,800 Victoria 4½ per cent. Bonds	472 16 9	
		1,017 13 5
,, Income Tax repaid by Commissioners of Inland Revenue		26 1 0
Total £		1,097 12 11

APPENDIX

"ATALANTA"

CAPITAL

Dr.

RECEIPTS.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
To Balance of Securities on 1st January, 1893, viz. —		
South Australian 4 per cent. Bonds (1907-29)	...	7,500 0 0
,, Cash transferred from Capital Account of "Soldiers' Effects" Fund for Securities transferred by this Fund, as per contra	100 0 0	
Total £	100 0 0	7,500 0 0

Dr.

INCOME

RECEIPTS.	£ s. d.
To Balance on 1st January, 1893	17 5 0
,, Dividends received on the undermentioned Securities, viz.:—	
£7,500 South Australian 4 per cent. Bonds	291 17 6
,, Income Tax repaid by Commissioners of Inland Revenue	7 11 0
,, Cash transferred from Capital Account	100 0 0
Total £	416 13 6

XIV.

FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.		CASH.	Government Securities. COLONIAL.
		£ s. d.	£ s. d.
By Cash transferred to General Fund, Capital Account, for £300 South Australian 4 per cent. Bonds, as per contra		300 0 0	
		300 0 0	...
By Balance of Securities on 31st December, 1893, viz.:—			
South Australian 4 per cent. Bonds (1907-9)	£14,300 0 0		
Victoria 4½ per cent. Bonds (1904)	10,800 0 0		
			25,100 0 0
Total £		300 0 0	25,100 0 0

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Payment of Allowances to Widows and Orphans	428 19 11
,, ,, ,, ,, of Officers	282 4 10
,, ,, ,, for Maintenance and Education of Orphans	17 0 0
,, Fee for preparation of Estimate of Assets and Liabilities	5 5 0
,, Commission on Post Office Orders	1 14 8
,, Cash transferred to General Fund, Income Account, on 30th December, viz:—	
Proportion of Cost of Management at 4 per cent. on Income	41 10 0
,, Cash transferred to Capital Account	300 0 0
	1,076 14 5
,, Balance on 31st December, 1893	20 18 6
Total £	1,097 12 11

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Subject to observations in Report—examined and found correct.
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

XV.

RELIEF FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH.	Government Securities. COLONIAL.
	£ s. d.	£ s. d.
By Securities transferred on 30th December, 1893, to "Soldiers' Effects" Fund South Australian, 4 per cent Bonds, (1907)	...	100 0 0
,, Cash transferred to Income Account during the year	100 0 0	
	100 0 0	100 0 0
,, Balance of Securities on 31st December, 1893, viz.:— South Australian 4 per cent. Bonds (1907-29)	...	7,400 0 0
Total £	100 0 0	7,500 0 0

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Payment of Allowances to Widows and Orphans	178 5 0
,, ,, ,, ,, of Officers	162 10 0
,, Fee for preparation of Estimate of Assets and Liabilities	5 5 0
,, Commission on Post Office Orders	0 16 7
,, Cash transferred to General Fund, Income Account, on 30th December, viz:—	
Proportion of Cost of Management at 4 per cent. on Income	12 0 0
	358 16 7
,, Balance on 31st December, 1893	57 16 11
Total £	416 18 6

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found Correct.
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

Dr. CAPITAL

RECEIPTS.	CASH.	GOVERNMENT SECURITIES. Home.	GOVERNMENT SECURITIES. Colonial.	DEBENTURES. Railways, Water Works, &c. Home.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz.:—				
Consols 2¾ per cent.	...	16,264 12 8		
Bristol Water Works 3½ p. c. Perp. Debenture Stk.	...	...	...	12,500 0 0
New Zealand 4 per cent. Consolidated Stock (1929) £26,698 10 0				
New Zealand 3½ p. c. Inscrbd Stk. (1940) 9,007 11 10				
Queensland 4 p. c. Inscribed Stock (1924) 20,000 0 0				
South Australian 4 per cent. Inscribed Stock (1916-35) 11,000 0 0				
South Australian 4 p.c. Bonds (1907-16) 8,700 0 0				
West Australian 4 p. c. Bonds (1902) 10,000 0 0			85,406 1 10	
,, Cash transferred from Income Account	3,066 2 5			
,, Cash, proceeds of Sale of £16,264 12*s.* 8*d.* Consols 2¾ per cent., as per contra	16,020 13 3			
,, Securities purchased, viz.—				
London and St. Katherine Docks 4 per cent. Debenture Stock—				
On 30th March	...	...	...	6,500 0 0
On 4th April	...	...	...	1,000 0 0
East and West India Dock 4 p. c. Debenture Stock—				
On 30th March	...	...	...	6,000 0 0
On 4th April	...	...	...	812 0 0
,, Securities transferred by War Office under Regimental Debts Act on 17th April, 1893, viz.:—				
Consols 2¾ per cent.	...	4,323 10 9		
,, Cash, proceeds of West Australian 4 per cent. Bonds paid off 15th July, 1893	600 0 0			
,, Securities transferred on 30th December, 1893, viz.:—				
From General Fund, Capital Account, South Australian 4 per cent. Bonds (1907-9)	...	...	3,400 0 0	
From "Atalanta" Fund, for South Australian 4 per cent. Bonds (1907)	...	...	100 0 0	
From Ashantee War Fund, for South Australian 4 per cent. Bonds (1899)	...	...	100 0 0	
From Light Brigade Fund, for Consols 2¾ per cent.	...	66 19 2		
Total £	19,686 15 8	20,655 2 7	89,006 1 10	26,812 0 0

Dr. INCOME

RECEIPTS.	£ s. d.	£ s. d.
To Dividends received on the undermentioned Securities, viz.:—		
£16,264 12*s.* 8*d.* Consols 2¾ per cent. (Jan. £111 16 5, April £111 16 5)	283 1 10	
£4,323 10*s.* 9*d.* ,, ,, (July £29 14 6, Oct. £29 14 6)		
£12,500 Bristol Water Works 3½ per cent. Perpetual Debenture Stock	426 2 3	
£26,698 10*s.* New Zealand 4 per cent. Consolidated Stock	1,067 18 8	
£9,007 11*s.* 10*d.* ,, 3½ ,, Inscribed Stock	315 5 2	
£20,000 Queensland 4 per cent. Inscribed Stock	800 0 0	
£11,000 South Australian 4 per cent. Inscribed Stock	428 1 8	
£8,700 South Australian 4 per cent. Bonds	338 11 6	
£10,000 West Australian 4 per cent. Bonds	389 3 4	
£6,812 East and West India Dock 4 per cent. Debenture Stock	132 11 0	
£7,500 London and St. Katherine Docks 4 per cent. Debenture Stock	145 12 6	
		4,326 7 11
,, Income Tax repaid by Commissioners of Inland Revenue		39 6 8
		4,365 14 7
To Balance on 31st December, 1893		5 15 6
Total £		4,371 10 1

EFFECTS FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH. £ s. d.	GOVERNMENT SECURITIES. Home. £ s. d.	GOVERNMENT SECURITIES. Colonial. £ s. d.	DEBENTURES. Railways, Water Works, &c., Home. £ s. d.
By Sale of Consols, 2¾ per cent. on 30th March and 4th April, as per contra	...	16,264 12 8		
,, Cash paid for £7,500 London and St. Katherine Docks 4 per cent. Debenture Stock, as per contra	8,768 17 0			
,, Cash paid for £6,812 East and West India Dock 4 per cent. Debenture Stock as per contra	7,251 16 3			
,, West Australian Bonds paid off 15th July, 1893	...	...	600 0 0	
,, Cash transferred :—				
To General Fund, Capital Account, for £3,400 South Australian 4 per cent. Bonds	3,400 0 0			
,, "Atalanta" Fund, for £100 South Australian 4 per cent. Bond	100 0 0			
,, Ashantee War Fund, for £100 South Australian 4 per cent. Bond	100 0 0			
,, Light Brigade Fund, for Consols, 2¾ per cent.	66 2 5			
	19,686 15 8	16,264 12 8	600 0 0	...
,, Balance of Securities on 31st December, 1893, viz. :—				
Consols, 2¾ per cent.	..	4,390 9 11		
Bristol Water Works, 3½ per cent. Perpetual Debenture Stock (£ 12,500 0 0)				
East and West India Dock 4 per cent. Debenture Stock (£ 6,812 0 0)				
London and St. Katherine Docks 4 per cent. Debenture Stock (£ 7,500 0 0)				26,812 0 0
New Zealand 4 per cent. Consolidated Stock (1929) (£ 26,698 10 0)				
New Zealand 3½ per cent. Inscribed Stock (1940) (£ 9,007 11 10)				
Queensland 4 per cent. Inscribed Stock (1924) (£ 20,000 0 0)				
South Australian 4 per cent. Inscribed Stock (1916-35) (£ 11,000 0 0)				
South Australian 4 per cent. Bonds (1907-16) (£ 12,300 0 0)				
West Australian 4 per cent. Bonds (1902) (£ 9,400 0 0)			88,406 1 10	
Total £	19,686 15 8	20,655 2 7	89,006 1 10	26,812 0 0

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Balance on 1st January, 1893	4 12 1
,, Payment of Allowances to Widows and Orphans	1,115 10 0
,, Fee for preparation of Estimate of Assets and Liabilities	5 5 0
,, Commission on Post Office Orders	5 10 7
,, Cash transferred to General Fund, Income Account, on 30th December, viz. :— Proportion of Cost of Management at 4 per cent. on Income	174 10 0
,, Cash transferred to Capital Account	3,066 2 5
Total £	4,371 10 1

(Signed) J. S. YOUNG, COLONEL, *Secretary.*

Subject to observations in Report—examined and found correct,
(Signed) GEORGE H. TRIPP,
22nd March, 1894.

APPENDIX

ASHANTEE

CAPITAL

Dr.

RECEIPTS.	£ s. d.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
To Balance of Securities on 1st January, 1893, viz. :—			
New South Wales 4 per cent. Bonds (1903)	800 0 0		
South Australian 4 per cent. Bonds (1899)	500 0 0		
Victoria 4 per cent Bonds (1899)	800 0 0		2,100 0 0
,, Cash transferred from Capital Account of "Soldiers' Effects" Fund for Securities transferred by this Fund, as per contra		100 0 0	
Total		100 0 0	2,100 0 0

INCOME

Dr.

RECEIPTS.	£ s. d.	£ s. d.
To Dividends received on the undermentioned Securities, viz :—		
£800 New South Wales 4 per cent. Bonds	31 2 8	
£500 South Australian 4 per cent. Bonds	19 9 2	
£800 Victoria 4 per cent. Bonds	31 2 8	
		81 14 6
,, Income Tax repaid by Commissioners of Inland Revenue		2 2 0
,, Cash transferred from Capital Account		100 0 0
Total £		183 16 6

APPENDIX

ZERVUDACHI

CAPITAL

Dr.

RECEIPTS.	CASH. £ s. d.	Government Securities. Home. £ s. d.	Colonial. £ s. d.
To Balance of Securities on 1st January, 1893, viz.:			
Consols 2¾ per cent.	...	124 15 0	
New Zealand 3½ per cent. Inscribed Stock (1940)	...	...	1,543 5 7
,, Cash transferred from Income Account	57 9 2		
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz.:			
Consols 2¾ per cent.	...	58 3 8	
Total £	57 9 2	182 18 8	1,543 5 7

INCOME

Dr.

RECEIPTS.	£ s. d.	£ s. d.
To Dividends received on the undermentioned Securities, viz.:		
£124 15*s.* 0*d.* Consols 2¾ per cent.	3 8 8	
£1,543 5*s.* 7*d.*, New Zealand 3½ per cent. Inscribed Stock	54 0 6	
		57 9 2
Total £		57 9 2

WAR FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.				CASH.			Government Securities. Colonial.		
				£	s.	d.	£	s.	d.
By Securities transferred on 30th December, 1893, to "Soldiers' Effects" Fund:— South Australian 4 per cent. Bond (1899)							100	0	0
,, Cash transferred to Income Account during the year				100	0	0			
By Balance of Securities on 31st December, 1893, viz.:—	£	s.	d.	100	0	0	100	0	0
New South Wales 4 per cent Bonds (1903)	800	0	0						
South Australian 4 per cent Bonds (1899)	400	0	0						
Victoria 4 per cent Bonds (1899)	800	0	0						
							2,000	0	0
Total . . £				100	0	0	2,100	0	0

ACCOUNT. *Cr.*

EXPENDITURE.	£	s.	d.
By Balance on 1st January, 1893	19	9	9
,, Payment of Allowances to Widows	83	4	0
,, Fee for preparation of Estimate of Assets and Liabilities	5	5	0
,, Commission on Post Office Orders	0	10	8
,, Cash transferred to General Fund, Income Account on 30th December, viz.:— Proportion of Cost of Management at 4 per cent. on Income	3	10	0
	111	19	5
By Balance on 31st December, 1893.	71	17	1
Total . £	183	16	6

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct.
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

XVIII.

FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.				CASH.			Government Securities. Home.			Colonial.		
				£	s.	d.	£	s.	d	£	s.	d.
By Cash transferred to General Fund, Capital Account, for £58 3s. 8d. Consols 2¾ per cent. as per contra				57	9	2						
				57	9	2	...			...		
,, Balance of Securities on 31st December, 1893, viz.:— Consols, 2¾ per cent.				...			182	18	8			
New Zealand 3½ per cent. Inscribed Stock (1940)				...			...			1,543	5	7
Total . . £				57	9	2	182	18	8	1,543	5	7

ACCOUNT. *Cr.*

EXPENDITURE.	£	s.	d.
By Cash transferred to Capital Account	57	9	2
Total . . £	57	9	2

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct.
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

LIGHT BRIGADE (BALACLAVA)

CAPITAL

Dr.

RECEIPTS.	CASH.	Government Securities. Home.	Government Securities. Colonial.
	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz. :— Consols, 2¾ per cent.	...	3,047 9 9	
,, Cash transferred from Capital Account of "Soldiers' Effects" Fund for Securities transferred by this Fund, as per contra	66 2 5	...	...
,, Securities transferred from General Fund, Capital Account, on 19th April, 1893, in exchange for Consols, as per contra, viz. :— Cape of Good Hope 4½ per cent. Bonds, redeemable £1800 on 15th October, 1897, and £1,000 on 15th October, 1900	...	...	2,800 0 0
Total £	66 2 5	3,047 9 9	2,800 0 0

INCOME

Dr.

RECEIPTS.			£ s. d.
To Dividends received on the undermentioned Securities, viz. :—			
£3,047 9*s.* 9*d.* Consols, 2¾ per cent.	Jan. £20 19 0 / April £20 19 0	£42 16 4	
£66 19*s.* 2*d.* do. do.	July 9 2 / Oct. 9 2		
£2,800 0*s.* 0*d.* Cape of Good Hope 4½ per cent. Bonds, Oct.		61 8 8	
			103 19 7
,, Cash transferred from Capital Account			66 2 5
Total £			170 2 0

APPENDIX

COUNTY OF

CAPITAL

Dr.

RECEIPTS.	Government Securities. Colonial.
	£ s. d.
To Balance of Securities on 1st January, 1893, viz. :— Queensland 4 per cent. Inscribed Stock (1915)	815 16 5
Total £	815 16 5

INCOME

Dr.

RECEIPTS.	£ s. d.
To Balance on 1st January, 1893	9 5 7
To Dividend received on the undermentioned Securities, viz. :— £815 16*s.* 5*d.* Queensland 4 per cent. Inscribed Stock	32 12 6
Total £	41 18 1

RELIEF FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH.	Government Securities. Home.	Government Securities. Colonial.
	£ s. d.	£ s. d.	£ s. d.
By Securities transferred to General Fund, Capital Account, on 19th April, 1893, in exchange for Cape of Good Hope 4½ per cent. Bonds, as per contra, viz.:—			
Consols, 2¾ per cent.	...	2,980 10 7	...
,, Securities transferred on 30th December, 1893, to "Soldiers' Effects" Fund—			
Consols 2¾ per cent.	...	66 19 2	...
,, Cash transferred to Income Account during the year	66 2 5	...	...
,, Balance of Securities on 31st December, 1893, viz.:—	66 2 5	3,047 9 9	...
Cape of Good Hope 4½ per cent. Bonds, redeemable £1,800 on 15th October, 1897, and £1,000 on 15th October, 1900	...	...	2,800 0 0
Total £	66 2 5	3,047 9 9	2,800 0 0

ACCOUNT. *Cr*

EXPENDITURE.	£ s. d.
By Payment of Allowances to 14 of the Survivors	134 17 4
,, Fee for preparation of Estimate of Assets and Liabilities	5 5 0
,, Commission on Post-Office Orders	0 14 4
,, Cash transferred to General Fund, Income Account, on 30th December, viz.:—	
Proportion of Cost of Management at 4 per cent. on Income	4 0 0
	144 16 8
By Balance on 31st December, 1893	25 5 4
Total £	170 2 0

(*Signed*) J. S. YOUNG, Colonel, *Secretary.*

Subject to observations in Report—examined and found correct,
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

XX.

FORFAR FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	Government Securities. Colonial.
	£ s. d.
By Balance of Securities on 31st December, 1893, viz.:—	
Queensland 4 per cent. Inscribed Stock (1915)	815 16 5
Total £	815 16 5

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Payment of Allowances	25 19 8
,, Commission on Post-Office Orders	0 3 0
,, Cash transferred to General Fund, Income Account, on 30th December, viz.:—	
Proportion of Cost of Management at 4 per cent. on Income	1 0 0
	27 2 8
By Balance on 31st December, 1893	14 15 5
Total £	41 18 1

(*Signed*) J. S. YOUNG, Colonel, *Secretary.*

Examined and found correct,
(*Signed*) GEORGE H. TRIPP.
22na March, 1894.

"VICTORIA"

Dr. CAPITAL

RECEIPTS.	CASH.	Government Securities. Colonial.	Debentures, &c. Corporation, Canal, &c. Home.
	£ s. d.	£ s. d.	£ s. d.
To Amount received from The Right Hon. The Lord Mayor of London:			
On 9th August, 1893	50,000 0 0		
13th October ,,	15,000 0 0		
20th November ,,	2,441 13 11		
12th December ,,	135 10 10		
,, Amount received through Crown Agents for the Colonies, being proceeds of Concert given at Trinidad, for Widows and Orphans of men lost in H.M.S. "Victoria"	33 11 9		
,, Securities purchased, viz.:—			
On 13th November—			
Liverpool Corporation 3½ per cent. Stock, non-redeemable	...	...	17,130 12 6
Wigan do. 3 per cent. Stock, (1921).	...	...	15,150 0 0
Portsmouth do. 3 do. do. (1913-33)	...	...	5,000 0 0
On 16th November—			
Manchester Ship Canal 4 per cent. 1st Debentures (Registered) 2nd Issue, (1914)	...	...	5,000 0 0
Portsmouth Corporation 3 per cent. Stock, (1913-33)	...	...	9,863 17 2
On 29th November—			
Manchester Ship Canal 4 per cent. 1st Debentures (Registered) 2nd Issue, (1914)	...	...	8,500 0 0
,, Securities transferred from General Fund, Capital Account on 30th December, 1893, viz.:—			
Queensland 4 per cent. Inscribed Stock (1915)	...	2,230 14 7	
Total £	67,610 16 6	2,230 14 7	60,644 9 8

Dr. INCOME

RECEIPTS.	£ s. d.
To Cash transferred from Capital Account	684 6 6
Total £	684 6 6

RELIEF FUND.

ACCOUNT, 1893.

Cr.

PAYMENTS.		CASH.	Government Securities. Colonial.	Debentures, &c. Corporation, Canal, &c Home.
		£ s. d.	£ s. d.	£ s. d.
By Cash paid for—				
£17,130 12*s.* 6*d.* Liverpool Corporation, 3½ per cent. Stock		20,000 0 0		
£15,150 0*s.* 0*d.* Wigan ,, 3 ,, ,,		14,998 12 6		
£ 5,000 0*s.* 0*d.* Portsmouth ,, 3 ,, ,,		5,031 5 0		
£ 5,000 0*s.* 0*d.* Manchester Ship Canal, 4 per cent. Debentures (Reg.), 2nd Issue (1914)		5,414 16 0		
£9,863 17*s.* 2*d.* Portsmouth Corporation, 3 per cent. Stock		9,968 15 0		
£8,500 0*s.* 0*d.* Manchester Ship Canal, 4 per cent. Debentures (Reg.), 2nd Issue (1914) . . . . . as per contra.		9,215 8 6		
,, Cash transferred to General Fund, Capital Account, for £2,230 14*s.* 7*d.* Queensland 4 per cent. Inscribed Stock		2,297 13 0		
,, Cash transferred to Income Account during the year . . .		684 6 6		
		67,610 16 6	...	...
By Balance of Securities on 31st December, 1893, viz :—	£ s. d.			
Liverpool Corporation 3½ per cent. Stock (non-redeemable)	17,130 12 6			
Manchester Ship Canal 4 per cent., 1st Debentures (Reg.), 2nd Issue (1914) .	13,500 0 0			
Portsmouth Corporation 3 per cent. Stock (1913-33)	14,863 17 2			
Wigan Corporation 3 per cent. Stock (1921)	15,150 0 0			60,644 9 8
Queensland 4 per cent. Inscribed Stock (1915) . . .		...	2,230 14 7	
Total . . . £		67,610 16 6	2,230 14 7	60,644 9 8

ACCOUNT.

Cr.

EXPENDITURE.	£ s. d.
By Payment of Allowances to Widows and Orphans of Officers	123 13 4
,, ,, ,, to Widows, Orphans, Dependent Relatives and others	559 3 0
,, Commission on Post Office Orders	1 5 2
,, Cost of Power of Attorney	0 5 0
Total . . . £	684 6 6

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct,
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

APPENDIX

ROYAL VICTORIA ENDOWMENT FUND

Dr.

RECEIPTS.	CASH.	Government Securities.	Debentures. Railways, Water Works, &c.
		Indian & Colonial.	Home.
	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st of January, 1893, viz. :—			
Canada 4 per cent. Bonds (1904) £11,500 0 0			
Canada 4 per cent. Inscribed Stock 4,273 0 0			
Cape of Good Hope 5 per cent. 10/40 Bonds (1893-1923) 2,100 0 0			
Ceylon 4 per cent. Inscribed Stock (1934) 1,880 2 10			
India 3½ per cent. Stock 2,926 16 6			
New South Wales 3½ per cent. Inscribed Stock (1918) 27,600 0 0			
Queensland 4 p. cent. Inscribed Stock (1915) 1,699 17 2			
,, ,, ,, (1924) 4,198 4 2			
South Australian 4 per cent. Bonds (1899-1929) 28,500 0 0			
South Australian 4 per cent. Inscribed Stock (1917-36) 6,278 6 5			
Victoria 4½ per cent. Bonds (1904) 10,200 0 0		101,156 7 1	
London and Greenwich Railway 4 per cent. Mortgage (payable 1st July, 1908)	...	...	50,000 0 0
,, Cash transferred from Income Account	1,355 13 11		
,, Cash, proceeds of Cape of Good Hope 5 per cent. Bonds paid off 1st December, 1893	2,100 0 0		
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz. :— South Australian 4 per cent. Inscribed Stock, 1917-36	...	3,383 15 10	
Total £	3,455 13 11	104,540 2 11	50,000 0 0

APPENDIX

RESERVE FUND

Dr.

RECEIPTS.	CASH.	Government Securities.
		Colonial.
	£ s. d.	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz. :—			
Cape of Good Hope 4½ per cent. Bonds (redeemable by Annual Drawings of 1 per cent. accumulative) 500 0 0			
New South Wales 5 per cent. Bonds (1872-98) 4,500 0 0			5,000 0 0
,, Cash, proceeds of New South Wales 5 per cent. Bonds paid off 1st January, 1893		600 0 0	
,, Dividends received on the undermentioned Securities, viz. :—			
£500 Cape of Good Hope 4½ per cent. Bonds		21 16 10	
£4,500 New South Wales 5 per cent. Bonds Jan. 109 13 9		204 6 10	
£3,900 do. do. July 94 13 1			
,, Income Tax repaid by Commissioners of Inland Revenue		2 16 8	
,, Securities transferred from General Fund, Capital Account, on 30th Dec., 1893, viz. :— South Australian 4 per cent. Inscribed Stock (1917-36)		...	811 14 11
Total £		828 19 11	5,811 14 11

PATRIOTIC ASYLUM.

CAPITAL ACCOUNT, 1893.

Cr.

PAYMENTS.		CASH.	Government Securities.	Debentures
			Indian & Colonial.	Railways, Water Works, &c. Home.
		£ s. d.	£ s. d.	£ s. d.
By Cape of Good Hope 5 per cent. Bonds paid off 1st December, 1893		...	2,100 0 0	
,, Cash transferred to General Fund, Capital Account, for £3,383 15*s.* 10*d.* South Australian 4 per cent. Inscribed Stock .		3,455 13 11		
		3,455 13 11	2,100 0 0	...
By Balance of Securities on 31st December, 1893, viz. :—	£ s. d.			
Canada 4 per cent. Bonds (1904) . . .	11,500 0 0			
Canada 4 per cent. Inscribed Stock . . .	4,273 0 0			
Ceylon 4 per cent. Inscribed Stock (1934) . .	1,880 2 10			
India 3½ per cent. Stock	2,926 16 6			
New South Wales 3½ per cent. Inscribed Stock (1918)	27,600 0 0			
Queensland 4 per cent. Inscribed Stock (1915) *	2,395 9 2			
,, ,, ,, (1924) *	3,502 12 2			
South Australian 4 per cent. Bonds (1899-1929) .	28,500 0 0			
South Australian 4 per cent. Inscribed Stock (1917-36)	9,662 2 3			
Victoria 4½ per cent. Bonds, 1904 . .	10,200 0 0			
			102,440 2 11	
London and Greenwich Railway 4 per cent. Mortgage (Payable 1st July, 1908)		...	...	50,000 0 0
		£ 3,455 13 11	104,540 2 11	50,000 0 0

NOTE.—A £1 Share in the Army and Navy Co-operative Society also belongs to the Official Trustees, though registered in the name of the Superintendent.

* Error in amounts of Queensland Stock, redeemable respectively in 1915 and 1924, of £695 12s. 0d. in Balance, 31st December, 1892, has been adjusted, and the correct amounts are now shewn as above.

Total . . £

XXII A.

CAPITAL ACCOUNT.

PAYMENTS.		CASH.	Government Securities.
			Colonial.
		£ s. d.	£ s. d.
By New South Wales 5 per cent. Bonds, paid off 1st January, 1893 . . .			600 0 0
,, Cash transferred to General Fund, Capital Account, for— £811 14*s.* 11*d.* South Australian 4 per cent. Inscribed Stock, as per contra .		828 19 11	
,, Balance of Securities on 31st December, 1893, viz. :—	£ s. d.	828 19 11	600 0 0
,, Cape of Good Hope 4½ per cent. Bonds (redeemable by Annual Drawings of 1 per cent. accumulative)	500 0 0		
,, New South Wales 5 per cent. Bonds (1872-1898) . . .	3,900 0 0		
,, South Australian 4 per cent. Inscribed Stock (1917-36) . .	811 14 11		
			5,211 14 11
Total . . . £		828 19 11	5,811 14 11

(*Signed*) J. S. YOUNG, COLONEL,
Secretary.

Subject to observations in Report—examined and found correct.
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

APPENDIX

ROYAL VICTORIA

Dr. INCOME

RECEIPTS.	£ s. d.	£ s. d.
To Balances on 1st January, 1893, viz.:		
Superintendent	11 2 1½	
Army and Navy Co-operative Society	24 15 9½	
Army and Navy Auxiliary Co-operative Supply	11 10 11½	
		47 8 10½
,, Dividends received on the undermentioned Securities, viz.:		
£11,500 Canada 4 per cent. Bonds	446 11 8	
£4,273 ,, ,, Inscribed Stock	165 18 9	
£2,100 Cape of Good Hope 5 per cent. 10/40 Bonds	101 18 9	
£1,880 2*s.* 10*d.* Ceylon 4 per cent. Inscribed Stock	73 3 5	
£2,926 16*s.* 6*d.* India 3½ per cent. Stock	102 8 8	
£27,600 New South Wales 3½ per cent. Inscribed Stock	966 0 0	
£5,898 1*s.* 4*d.* Queensland 4 per cent. Inscribed Stock	235 18 4	
£18,400 South Australian 4 per cent. Bonds	716 1 4	
£10,100 ,, ,,	393 1 2	
£6,278 6*s.* 5*d.* ,, ,, Inscribed Stock	244 6 9	
£10,200 Victoria 4½ per cent. Bonds	446 11 5	
£50,000 London and Greenwich Railway 4 per cent. Mortgage	1,948 0 4	
£1 Share Army and Navy Co-operative Society	1 10 0	
		5,841 10 7
,, Income Tax repaid by Commissioners of Inland Revenue		122 19 8
,, Amount received for Maintenance and Education of Orphans, Greenwich Hospital Fund		218 19 3
,, Grants from Education Department		222 17 4
,, Rent of Farm	£146 10 0	
Income Tax repaid	3 10 0	
		150 0 0
Balance Dr.	£12 15 0	
Less—Cash in hands of Superintendent £2 9 3½		
,, with Army and Navy Co-operative Society 5 15 5		
,, with Army and Navy Auxiliary Co-operative Supply 3 0 1		
	11 4 9½	
		1 10 2½
Total	£	6,605 5 11

APPENDIX

Dr. BUILDING AND LAND

RECEIPTS.	£ s. d.
To Balance on 1st January, 1893	1,381 6 3
,, Amount received for Grazing of Sheep on land	7 10 0
,, Amount transferred from Income Account	91 5 5½
Total £	1,480 1 8½

PATRIOTIC ASYLUM.

ACCOUNT, 1893. *Cr.*

EXPENDITURE.	£ s. d.	£ s. d.
Amount of Expenditure under the following heads, viz. :—		
Provisions	1,918 6 1	
Water	89 0 0	
Fuel	283 5 6	
Light	92 14 8	
Laundry Stores	36 1 6	
Household Stores	29 19 11½	
Clothing and Outfits	533 19 3½	
Furniture and Repairs	114 6 9	
School Books and Stationery	37 0 8	
Treats, Prizes, Good Conduct Rewards, and Gratuities	70 15 2½	
Medicines and Medical Comforts	13 4 0½	
Travelling expenses	34 6 7	
Carriage	1 19 3	
Postage	17 18 2	
Miscellaneous	47 12 9	
Insurance	16 7 9	
Taxes	449 2 9	
Salaries and Wages	1,100 16 0½	
„ Cash transferred to General Fund, Income Account, on 30th December, towards Cost of Management	271 10 0	
		5,158 6 6½
„ Cash transferred to Building and Land Maintenance Account		91 5 5½
„ Cash transferred to Capital Account		1,355 13 11
Average number of Girls, 294; cost per head, say, £17 10s. 11d. exclusive of charges for aintenance of Buildings and Lands, see separate account below.		
Total	£	6,605 5 11

XXII C.

MAINTENANCE ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.	£ s. d.
By Amount of Expenditure under the following heads, viz. :		
Ordinary Repairs	279 5 9	
New Work	999 4 1	
Engines	133 12 6	
Upkeep of Grounds	67 19 4½	
		1,480 1 8½
Total	£	1,480 1 8½

(Signed) J. S. YOUNG, Colonel, *Secretary.*

Subject to observations in Report—examined and found correct.
(Signed) GEORGE H. TRIPP.
22nd March, 1894.

THURLOW

Dr. CAPITAL

RECEIPTS.	CASH.	Government Securities. Colonial.
	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz :— Queensland 4 per cent. Inscribed Stock (1915)	...	653 15 4
,, Cash transferred from Income Account	21 16 0	
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz. :— Queensland 4 per cent. Inscribed Stock (1915)	...	21 3 4
Total . . .	21 16 0	674 18 8

INCOME

RECEIPTS.	£ s. d.
To Dividends received on the undermentioned Securities, viz :—	
£653 15*s.* 4*d.* Queensland 4 per cent. Inscribed Stock	26 3 0
Total . . £	26 3 0

APPENDIX

ROMAN CATHOLIC

Dr. CAPITAL

RECEIPTS.	CASH.	Government Securities. Colonial.
	£ s. d.	£ s. d.
To Balance of Securities on 1st January, 1893, viz :— Queensland 4 per cent. Inscribed Stock (1915)	...	35,347 3 9
,, Cash transferred from Income Account	50 4 3	
,, Securities transferred from General Fund, Capital Account, on 30th December, 1893, viz :— Queensland 4 per cent. Inscribed Stock (1915)	...	48 15 0
Total . . £	50 4 3	35,395 18 9

Dr. INCOME

RECEIPTS.	£ s. d.
To Dividends received on the undermentioned Securities, viz :— £35,347 3*s.* 9*d.* Queensland 4 per cent. Inscribed Stock	1,413 17 10
Total . . £	1,413 17 10

FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
By Cash transferred to General Fund, Capital Account, for £21 3*s.* 4*d.* Queensland 4 per cent. Inscribed Stock as per contra . .	21 16 0	
	21 16 0	...
,, Balance of Securities on 31st December, 1893, viz.:— Queensland 4 per cent. Inscribed Stock (1915)	...	674 18 8
Total . . . £	21 16 0	674 18 8

ACCOUNT.

EXPENDITURE.	£ s. d.
By Payment of Allowances, Gratuities, &c.	4 7 0
,, Cash transferred to Capital Account	21 16 0
Total . . £	26 3 0

(*Signed*) J. S. YOUNG, Colonel,
Secretary.

Examined and found correct,
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

XXIV.

ORPHANS' FUND.

ACCOUNT, 1893. *Cr.*

PAYMENTS.	CASH. £ s. d.	Government Securities. Colonial. £ s. d.
By Cash transferred to General Fund, Capital Account, for £48 15*s.* 0*d.* Queensland 4 per cent. Inscribed Stock, as per contra .	50 4 3	
	50 4 3	...
,, Balance of Securities on 31st December, 1893, viz:— Queensland 4 per cent. Inscribed Stock (1915)	...	35,395 18 9
Total . . £	50 4 3	35,395 18 9

ACCOUNT. *Cr.*

EXPENDITURE.	£ s. d.
By Payment of Allowances for Maintenance and Education of Orphans	1,363 13 7
,, Cash transferred to Capital Account	50 4 3
Total . . £	1,413 17 10

(*Signed*) J. S. YOUNG, Colonel.
Secretary.

Examined and found correct,
(*Signed*) GEORGE H. TRIPP,
22nd March, 1894.

REPORT

OF THE

BOARD OF VISITORS,

APPOINTED BY THE

SECRETARY OF STATE FOR WAR,

FOR THE INSPECTION OF

THE ROYAL MILITARY COLLEGE, SANDHURST,

In the Year 1894.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
BY HARRISON AND SONS, ST. MARTIN'S LANE,
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1894.

[C.—7485.] *Price* 1*d.*

Report of the Board of Visitors upon the Royal Military College, for the year 1894.

1. The Board of Visitors inspected the Royal Military College on the 29th of June.

2. The Gentlemen Cadets were seen on parade with arms. Their appearance was highly satisfactory, the average height being 5 feet $9\frac{3}{10}$ inches. The health of the Cadets was stated to have been good; the average daily sick having been 3·58 out of an average strength of 355, giving a daily percentage of 1·00.

3. The Board found the canteen in the same unsatisfactory condition as last year, and again urge the necessity for the construction of a suitable building.

4. In their last report the Board expressed their opinion that the system under which the mess is conducted was unduly extravagant and included expenses which should not be sanctioned. Since that report was written the entire system of accounts of the whole institution has been investigated by a Special Departmental Committee, with the result that they are stated to be now set up so as to satisfy the Finance Department of the War Office, who have undertaken their regular audit for each term.

The Board have had this report before them and think it right to direct attention to some points in which the expenditure at the Royal Military College and that at the Royal Military Academy are widely different, and should if possible be assimilated. The systems in operation at the two institutions re-act one upon the other, extravagant expenditure in one naturally leading to similar expenditure at the other.

5. Respecting the mess servants, the Board are of opinion that the War Department should provide mess servants in equal proportions to the number of Cadets at each Institution which, as the Committee observe, would raise the number at the Royal Military College from 23 to 31. The mess servants at the Royal Military Academy are paid and clothed by the public and do not, as a rule, receive any extra emoluments from the mess fund although the wages paid them are lower than those of their class at the Royal Military College, but notwithstanding this, the wages of the 23 servants, supposed to be provided by the public at the Royal Military College, are supplemented from the mess funds to the extent of more than 625*l.* a year, or at the average rate of more than 10*s.* a week for each servant.

6. The Committee also reported that the mess had expended in plant, in $2\frac{1}{2}$ years, the large sum of 2,356*l.*, or at the rate of 942*l.* a year, and observed that at the Royal Military Academy all mess equipment, without exception, is supplied by the War Office, and were of opinion, in which this Board entirely concurs, that the same course should be pursued at the Royal Military College, and that the practice of allowing the mess funds to be invested in articles of equipment other than those supplied by the State should be discontinued.

This will involve a fixed scale of equipment from which no departure should be permitted. The only expense then to be charged against the mess for equipment would be the cost of the necessary replacements and repairs. This is the practice at Woolwich, and is found to be the most equitable and economical arrangement.

7. In their last Report the Board drew attention to the fact that Cadets were allowed to spend 2*s.* a day on credit at the College stores. They were informed at their last visit that each Cadet is allowed credit for such sum only as his parents or guardians have previously sanctioned, which may not exceed 3*l.* a month, and that they are required to clear their accounts monthly. Subject to these conditions being maintained the Board are of opinion that the supply of articles to the Cadets at these stores is attended with advantage. They however observe that the various trading accounts for six months were charged with no less a sum than 338*l.* for wages, upon a gross amount of sales amounting to 3,258*l.*, and still yielded a net profit of 357*l.* The charge for wages seems excessive, and as there can be no object in accumulating a large balance on these sales it is suggested that prices might be reduced.

8. The Board have also had their attention directed to the statement in the Report of the Accounts Committee of the expenses incurred by the Cadets for games and recreation.

r p. 3776. 82930. Wt. 11431.

They fully endorse the opinion of the Committee, that at Woolwich the limitation of out-door games, the compulsory payment of subscriptions in advance, and the formation of a common fund for purposes of recreation, are distinct advantages from an administrative as well as from an account point of view, and they see no reason why these subscriptions should be greater at Sandhurst than at Woolwich, and generally the Board is of opinion that the system of issues and payments by the Cadets at the two institutions should, as recommended by the Accounts Committee, be the same as far as possible.

The Board were pleased to hear the statement made by the Governor that he has made satisfactory progress in giving effect to these recommendations.

9. The Board were glad to observe that an extra hour has been given to study. They are, however, of opinion that a rearrangement of the time table is advisable as at present the whole of the time taken for study falls in the early part of the day.

10. Complaints were again made of the excessive number of Cadets in the various classes, owing to the number at the College being 20 over the establishment. The Board do not attach very much importance to this complaint as they consider that two or three more in a class occasionally should not materially interfere with the instruction. If, however, the establishment of the College is 360 it seems advisable to keep to that number, particularly as the Board observed that in consequence of want of accommodation some of the Cadets were living in a house detached from the College.

11. Respecting the uniform issued to a Cadet on joining, the Board observe that whereas the cost of clothing to a Cadet on joining the Royal Military College is 31*l.* 15*s.* 10*d.* it is only 26*l.* 3*s.* 1*d.* at the Royal Military Academy. They see no reason for the difference, and recommend that the amount now charged at Woolwich should not be exceeded at either establishment.

12. The Board were gratified to learn that their recommendation as to instruction in military history and geography had been carried out as far as possible. They again recommend that the Cadets be allowed to take up French or German, and freehand drawing as voluntary subjects at their final examination.

13. The Board saw a class at work in the gymnasium. They were informed that the supervision of this very important exercise was carried out by one of the instructors who had for some time past devoted the whole of his leisure time to this duty with very great benefit to all concerned. The Board were surprised to hear that, beyond his pay as Instructor, this officer received no remuneration for his valuable services. They consider that supervision of the gymnastic training by a commissioned officer is decidedly necessary, and therefore recommend that it should be officially recognised by the payment of the officer entrusted with it.

14. The Board observe that the vacations at Sandhurst and Woolwich are of different lengths and at different periods of the year. It appears to the Board that it would be better if the vacations at the two establishments were at the same periods, and that if possible they should coincide with those at other educational institutions.

HAMPDEN.
ARTHUR D. HAYTER.
J. L. A. SIMMONS, Field Marshal.
H. A. SMYTH, General.
D. C. DRURY-LOWE, Lt.-General.
FRED. MIDDLETON, Lt.-General.

ALEX. DELAVOYE, Colonel,
Secretary.

APPENDIX A.

ROYAL MILITARY COLLEGE.

STATE. 29th June 1894.

DISTRIBUTION.	Staff Officers.							Educational Staff Officers		Gentleman Cadets.	Staff Clerk Section Army Service Corps.			Staff.		Permanent Staff.				Band Corps.				Cavalry Detachment.							Royal Artillery.	Engineer Services.				Engineer Detachment.				Medical Staff Corps.		Temporarily Attached.						School.		Civilian Department.						Draught Horses.	Total.	
	Governor and Commandant.	Assistant Commandant and Secretary.	Quartermaster.	Riding Master.	Surgeon.	Assistant Surgeon.	Chaplain.	Professors.	Instructors.		1st Division.	2nd Division.	3rd Division.	Gymnastic Instructors.	Armourer Sergeant.	Sergeant-Major.	Quartermaster-Sergeant.	Sergeant Instructor in Musketry.	Staff Sergeants.	Bandmaster.	Sergeant.	Corporal.	Musicians.	Sergeant-Major.	Sergeants.	Staff-Sergeant Farrier.	Corporals.	Acting Shoeing Smith.	Privates.	Horses.	Gunner.	Staff Engineer Clerk.	Sergeant-Major Foreman of Works.	Quartermaster-Sergeant Foreman of Works.	Civilian Labourers.	Sergeant-Major Instructor.	Sergeants.	Corporals.	Sappers.	Staff Sergeant.	Private.	Infantry Working Party. Officer.	Sergeant.	Corporals.	Privates.	Drill Instructors. Sergeants.	Sergts.' Mess Cook. Private.	Mistress.	Monitress.	Clerks.	Assistant Housekeepers.	Clerk of the Kitchen.	Servants, Messengers, &c.	Gatekeepers.	Workmen.		Persons.	Horses.
Effective Present	1	1	1	1	1	1	1	3	21	372	—	3	2	3	1	1	1	—	6	1	1	1	15	1	2	1	2	1	43	54	1	1	1	1	6	1	—	5	11	1	1	1	1	3	37	3	1	—	—	1	3	1	106	5	6	2	685	56
Sick	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—
Rusticated	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Absent with Leave	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	2	—
Absent on Sick Leave	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
Absent without Leave	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
At Aldershot (awaiting trial).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Total	1	1	1	1	1	1	1	3	21	380	—	3	2	3	1	1	1	—	6	1	1	1	15	1	2	1	2	1	46	54	1	1	1	1	6	1	—	5	11	1	1	1	1	3	37	3	1	1	1	1	3	1	106	5	6	2	698	56
Over Establishment	—	—	—	—	—	—	—	—	—	20	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	26	—
Wanting to complete	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
Establishment	1	1	1	1	1	1	1	3	21	360	1	1	3	3	1	1	1	—	6	1	1	1	16	1	2	1	2	1	46	54	1	1	1	1	6	1	—	5	11	1	1	1	1	3	37	3	1	1	1	1	3	1	102	5	6	2	675	56

APPENDIX B.

NUMBER of CADETS at each rate of Contribution.

Rates of Payments.	No. of Cadets.
QUEEN'S CADETS - - -	12
INDIAN CADETS - - - (who do not pay contribution.)	22
At £20 per annum - - -	5
„ £40 „ - - - -	51
„ £60 „ - - - -	80
„ £70 „ - - - -	14
„ £80 „ - - - -	1
„ £150 „ - - - -	195
Total - - -	380

APPENDIX C.

SUMMER TIME TABLE.

Studies, Exercises, &c.	Sunday.	Monday.	Tuesday, Thursday, and Friday.	Wednesday.	Saturday.
Rouse - - - - -	8.0 A.M.	5.45 A.M.	5.45 A.M.	5.45 A.M.	5.45 A.M.
Drill, *Riding, and Physical Training -	—	6.10 to 7.10 A.M	6.15 to 7.15.	6.15 to 7.15.	—
Commandant's Parade - - -	—	—	—	—	6.15 to 7.15.
1st Study, Physical Training - -	—	7.20 to 8.20.	7.20 to 8.20.	7.20 to 8.80.	7.20 to 8.20.
Breakfast - - - - -	9.	8.20.	8.20.	8.20.	8.20.
Hospital Attendance - - -	9.30.	8.30.	8.30.	8.30.	8.30.
Drill and *Riding - - - -	—	9 to 10.	9 to 10.	—	9 to 10.30.
Divine Service Parade - - -	10.30.	—	—	—	—
Extra Drill, *Riding, or Gymnastics -	—	—	—	2 to 3 P.M.	11.30 A.M. to 12.30 P.M.
2nd Study - - - - -	—	10.15 A.M. to 2.15 P.M.	10.15 A.M. to 2.15 P.M.	9 A.M. to 1 P.M.	—
Luncheon - - - - -	1 P.M.	2.15.	2.15.	1.	1.
*Riding and Gymnastics - - -	—	3.15 to 4.15.	3.15 to 4.15.	—	—
*Riding - - - - -	—	4.15 to 5.15.	4.15 to 5.15.	—	—
Restrictions and Stoppage of Leave, Roll Call.	5.	—	—	—	5.
Sword Drill - - - -	—	6.15 to 7.15.	6.15 to 7.15.	—	—
Mess - - - - -	8.	7.45.	7.45.	7.45.	8.
First Post - - - -	9.15.	9.15.	9.15.	9.15.	9.15.
Last Post - - - - -	9.45.	9.45.	9.45.	9.45.	9.45.
Lights out - - - - -	11.	10.	10.	10.	10.

* The rides fall in five minutes earlier so as to arrive at the Riding School punctually at the hours named.

The "Dress" will sound 15 minutes before each Parade or Study.

APPENDIX D.

RETURN showing the UNIVERSITY, PUBLIC and other SCHOOLS, at which the GENTLEMEN CADETS now in residence were educated.—29th June 1894.

Name of University or School.	Direct.	Assisted.	Total.
Edinburgh University	—	1	1
Oxford „	—	1	1
Aberdeen, Gordon's College	—	1	1
Bath College	1	—	1
Beaconsfield College, Windsor	—	1	1
Bedford Grammar School	9	9	18
Bedford, Modern	1	1	2
Boulogne-sur-mer, France	—	1	1
Bradfield College	3	1	4
Brighton College	1	3	4
Braurepaire School	—	1	1
Britannia, H.M. Ship	—	1	1
Canterbury, King's School	—	1	1
Chester, Arnold House	—	1	1
Cheltenham College	10	12	22
Chigwell School	—	1	1
Clifton College	11	17	28
Clongowes Wood College	—	1	1
Cork, Queen's College	—	1	1
Cowes, The Grange	—	1	1
Darmstadt	—	1	1
Dover College	2	3	5
Dublin, Black Rock College	—	1	1
Dulwich College	1	3	4
Eastbourne College	—	1	1
Edgebaston, The Oratory	—	2	2
Edinburgh Academy	—	1	1
Edinburgh, Mercheston	—	2	2
Elstree	—	1	1
Ely, King's School	—	1	1
Enniskillen, Port Royal School	—	1	1
Eton College	13	19	32
Fareham, Eastman's R.N.A.	—	1	1
Fareham, Stubbington House	—	1	1
Glenalmond, Trinity College	—	5	5
Godalming, Charterhouse	1	13	14
Guernsey, Queen Elizabeth's College.	—	3	3
Harrow	2	9	11
Hermitage, The	—	2	2
Hertford, Haileybury College	—	6	6
Hastings, Manor House	—	1	1
Honiton, All Hallows	—	1	1
Inverness College	1	—	1
Isle of Wight, Appledurcombe College.	1	—	1
Jersey, Victoria College	—	1	1
Kilbrook House	—	1	1
Kingston, Corrig School	—	1	1
Carried forward	57	137	194

Name of University or School.	Direct.	Assisted.	Total.
Brought forward	57	137	194
Lausanne, Switzerland	—	1	1
Leatherhead, St. John's	—	1	1
London Merchant Taylors	—	1	1
London, St. Paul's	2	11	13
Malvern College	3	4	7
Marlborough College	1	14	15
Melbourne, Australia	—	1	1
Musselburgh, Fette's College	—	—	3
Neuenheim College	1	2	3
New Cross R.N. School	—	1	1
Newton Abbott College	—	1	1
Ostend, Grosvenor College	—	1	1
Oundle	—	1	1
Owen's School	—	1	1
Oxford Military College	2	3	5
Oxford, St. Edward's	1	—	1
Polmont, Blair Lodge	—	4	4
Portsmouth Grammar School	2	1	3
Plymouth, Mannamead	1	—	1
Radley College	—	3	3
Ramsgate, South Eastern College	—	2	2
Repton	4	4	8
Rossal	—	1	1
Rugby	4	6	10
St. Michaels	—	1	1
Sedberg	—	1	1
Sherborne	—	4	4
Shrewsbury	—	2	2
Southsea, St. Helen's College	1	1	2
Southsea, North Grove School	—	1	1
Stonyhurst College	—	2	2
Stratford-on-Avon, Trinity College.	—	2	2
Tavistock, Kelly's College	—	2	2
Tiverton, Blundells	2	1	3
Tipperary, The Abbey	1	—	1
Tonbridge	1	1	2
Uppingham	1	3	4
Ushaw College	—	1	1
Warminster Grammar School	—	1	1
Wellington College	13	22	35
Westward Ho!	5	5	10
Winchester College	4	8	12
Windsor, Beaumont College	—	2	2
Windsor, St. Marks	1	—	1
Wolverhampton Grammar School	—	1	1
Private Tutors	—	4	4
Weymouth College	—	1	1
Westminster	—	3	3
Total	110	270	380

APPENDIX E.

TABLE showing the Parentage of the GENTLEMEN CADETS.

Rank or Profession.	No.
Princes	1
Peers	9
Baronets	—
Members of Parliament	—
Officers of the Army	190
Officers of the Navy	12
Clergymen	28
Legal Profession	15
Medical Profession	9
Civil Service	1
Indian Civil Service	17
Civil Engineers	9
Private Gentlemen, Merchants, &c.	89
Total	380

APPENDIX F.

RETURN showing the NUMBER of GENTLEMEN CADETS on the STRENGTH of the COLLEGE who have lost a TERM.

Educational Division.	By				Total.	Remarks.
	Failure in Study.	Rustication.	Sickness.	Other Causes.		
First	15	*1	—	1	17	* Will miss the examination in July and thereby lose a term.
Second	11	—	†3	—	14	† Includes two who will miss the examination in July and thereby lose a term.
Third	—	—	—	—	Nil	
Total	26	1	3	1	31	

APPENDIX G.

RETURN showing the AVERAGE AGE of the GENTLEMEN CADETS on passing the QUALIFYING EXAMINATION for COMMISSIONS :—

31st August 1893 - - - - - 20·32 years.
9th February 1894 - - - - - 20·44 „

WELLINGTON COLLEGE.

REPORT

OF THE

GOVERNORS

FOR THE

Year ended the 31st December 1893:

WITH ACCOUNTS.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
BY EYRE AND SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.

And to be purchased, either directly or through any Bookseller, from
EYRE AND SPOTTISWOODE, East Harding Street, Fleet Street, E.C., and
32, Abingdon Street, Westminster, S.W. ; or
JOHN MENZIES & Co., 12, Hanover Street, Edinburgh, and
90, West Nile Street, Glasgow ; or
HODGES, FIGGIS, & Co., Limited, 104, Grafton Street, Dublin.

1894.

[C.—7442.] *Price* 1½*d.*

WELLINGTON COLLEGE.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

In obedience to Your Majesty's commands signified by Your Majesty's Principal Secretary of State, We, the Governors of Wellington College, humbly report to Your Majesty that during the year 1893 the average number of foundationers being educated at the College was 89, the number on 31st December 1893 being 86; that the average number of non-foundationers attending the College during the period was 305, of which 300 were admitted at the full rate of charge, and 5* were admitted at the reduced rate of 80*l.* per annum.

We beg, lastly, humbly to report to Your Majesty that we have caused accounts to be prepared and audited, copies of which are appended, showing the revenue and expenditure of the College for the year 1893, the profit and loss, the assets and liabilities, and other details of the general financial working of the school.

Sealed, with the Seal of the Wellington College, this 19th day of May 1894.

J. F. CHANCE,
Secretary, Wellington College.

Seal.

* N.B.—12 (twelve) boys were admitted under the new rule for officers' sons in addition to these 5 on the 80*l.* list (making a total of 45 boys in the College on December 31st, 1893, under the new rule).

r 82228. Wt. 4870.

WELLINGTON COLLEGE.

Statement of Accounts for the Year ending December 31st, 1893.

I. Revenue Statement for the Year 1893.
II. Profit and Loss Account.
III. An Account of the "Tuition Fund" for 1893.
IV. Statement of Assets and Liabilities.
V. An Account of the "Endowment Fund."
VI. An Account of the "Scholarship Fund."
VII. An Account of the "Prize Fund."
VIII. An Account of the "Durand Scholarship Fund."

I hereby certify that I have examined the above-mentioned accounts, and find them correct.

(Signed) A. S. HARVEY.

8th February 1894.

I.—Revenue Account for the Year 1893.

Dr. Cr.

Expenditure.	£ s. d.	£ s. d.	Income.	£ s. d.
Ordinary Expenditure.				
To Tuition Fund		11,446 5 0	By Students for board and tuition	26,809 11 8
„ Scholarship Fund		1,435 0 0	„ do. entrance fees	534 0 0
„ Military Exhibitions		2,216 13 4	„ Discounts, commissions, &c.	481 7 9
„ Office and domestic salaries		979 8 11	„ Interest on mortgages and investments (Endowment Fund)	3,366 9 5
„ Pensions		119 11 3	„ Rents	1,267 15 11
„ Medical expenses		1,418 15 6		32,459 4 9
„ Wages and servants' liveries		1,744 14 4	„ Balance—deficiency	3,566 10 5
„ Board of boys and others		4,699 2 9		
„ Laundry expenses		518 14 10		
„ Fuel and lighting		1,408 17 4		
„ Taxes, rates, and insurance		605 12 2		
„ Carriage of goods, travelling expenses, and miscellaneous		434 7 0		
„ Stationery, printing, stamps, &c.		177 14 0		
„ Household goods and sundries		336 17 5		
„ Repairs to buildings and premises		1,765 1 5		
„ Speech Day expenses		127 13 7		
„ Foundationers at preparatory schools		816 13 4		
„ Garden, farm, and grounds		627 18 11		
„ Management of Sewage Works	250 0 0			
„ Less value of residual	20 0 0	230 0 0		
„ Interest of borrowed money		1,107 19 3		
„ Fire hose, &c.		129 9 2		
Total of ordinary expenditure		32,346 9 6		
Carried forward		32,346 9 6	Carried forward	36,025 15 2

I.—Revenue Account for the Year 1893—*continued.*

Dr. Cr.

Expenditure.	£ s. d.	£ s. d.	Income.	£ s. d.
Brought forward - -		32,346 9 6	Brought forward - -	36,025 15 2
Extraordinary Expenditure.				
To masters' stalls in chapel	93 10 0			
„ Tuition fund (additional) - -	635 7 2			
„ Sanitary Work:— Wilson and Sons, (kitchen apparatus)	167 8 0			
Cost and carriage of fresh sand for filters - -	49 8 5			
Spear and King, balance of account for draining gasman's cottage -	5 15 0			
Mr. Rogers Field, balance of fees -	1,350 0 0			
Aldin & Co., balance of account for works - -	96 11 8			
Sugg & Co., balance of account for gasfittings - -	407 19 4			
Cost of work done for Mr. Rogers Field by college workmen -	873 6 1			
Total of extraordinary expenditure -		3,679 5 8		
Total Expenditure during 1893		36,025 15 2		36,025 15 2

II.—Profit and Loss Account, 31st December 1893.

Dr. Cr.

1893.	£ s. d.	1893.	£ s. d.
Dec. 31. To Revenue Account Deficit for 1893 as per preceding account - - -	3,566 10 5	Jan. 1. By Balance from last years' account	67,747 19 4
„ „ Balance carried down - -	64,181 8 11		67,747 19 4
	67,747 19 4	1894. Jan. 1. By Balance, being net profit to date, the whole of which has been applied to Capital purposes - -	64,181 8 11

III.—An Account of the "Tuition Fund" for the Year 1893.

Dr. Cr.

1893.	£	s.	d.	1893.	£	s.	d.
To Salaries of master and assistant masters	11,783	6	8	Dec. 31. By Revenue account for amount transferred therefrom, being Tuition Fund of 30*l.* for each boy in school during the year	11,446	5	0
„ Stationery, printing, and school requisites	150	11	5	„ Revenue account for further amount transferred therefrom, being additional sum required to meet payments as per contra	635	7	2
„ School prizes and Examiners' fees	147	14	1				
	12,081	12	2		12,081	12	2

IV.—A Statement of Assets and Liabilities on 31st December 1893.

Dr. Cr.

Assets.	£	s.	d.	Liabilities.	£	s.	d.
To capital expenditure to 31st December 1893	313,604	1	3	By receipts on capital account to December 31st, 1893	198,236	0	1
„ Endowment Fund:				„ "Endowment Fund."	112,878	7	4
Invested on mortgages — £72,000 0 0				„ "Prize Fund"	4,147	5	0
Cost of six cottages at Crowthorne — 1,000 0 0				„ „ being interest unexpended and carried forward to 1894	76	9	10
Loans to capital account:				„ "Durand Scholarship Fund"	1,674	7	11
£ s. d.				„ „ being interest unexpended and carried forward to 1894	18	14	4
1875–15,004 9 2				„ Loans from "Endowment Fund" applied to Capital Account	39,878	7	4
1893–24,873 18 2				„ Mortgage of Penny's Boarding House, balance due January 1st, 1893 — 5,250 0 0			
— 39,878 7 4				„ Less second instalment of repayment paid during 1893 — 750 0 0			
	112,878	7	4		4,500	0	0
„ Prize Fund (Principal Account):				„ Loan from Bank of England	5,100	0	0
Cost of 65*l.* 6*s.* 8*d.* Midland Railway 3 °/₀ Debentures (Parsons' Prize) — £ 49 19 9				„ Pupils' receipts in advance	804	10	0
Cost of 1,866*l.* 9*s.* 3*d.* Consols (being the Fund for various prizes and the Benson Scholarship) — 1,755 5 11				„ Liabilities to tradesmen and others	3,639	6	1
Cost of 1,756*l.* L. & N. W. R. 3 °/₀ Debentures (Lord Derby's Gift) — 1,517 10 4				„ Amount due to "Special Funds Account"	461	5	3
Cost of 296*l.* L. & N. W. R. 3°/₀ Debentures (Walter Prizes) — 299 10 5				„ Profit and Loss Account, balance to credit thereof	*64,181	8	11
Cost of 393*l.* Midland Railway 4°/₀ Perpetual Preference Stock (Penny Gift) — 524 18 7				„ Cash overdrawn at Bank of England — 561 15 8			
	4,147	5	0	Less in Messrs. Simonds' hands — 31 11 10			
„ Durand Scholarship (Principal Account):					530	13	10
Cost of 1,530*l.* 1*s.* 10*d.* India 3½ °/₀ Stock — 1,602 15 5							
Cost of 70*l.* 17*s.* 9*d.* Consols — 71 12 6							
	1,674	7	11				
„ Stores, value in hand	1,037	6	3				
„ Amount outstanding due from pupils	1,126	12	3				
„ „ „ „ for rents and dividends accrued to 31st Dec. 1893	1,227	2	1				
„ Amount due from sundry debtors	219	9	9				
„ Income tax deducted from rents (repayable by Inland Revenue Department)	5	8	11				
„ Cash, balance in hand	50	0	0				
„ Scholarship fund, debit balance (*see* Account No. 6) carried forward to 1894	156	15	2				
	436,126	15	11		436,126	15	11

* The whole of which has been appropriated to the capital expenditure of the College.

V.—An Account of the "Endowment Fund," 31st December 1893.

Dr.					Cr.		
1893.		£	s.	d.	1893.	£	s.	d.
Dec. 31. To Balance - - -		112,878	7	4	Jan. 1. By Balance from last account - -	107,532	17	0
					Dec. 31. „ Profit on realising 17,984*l.* L. & N. W. Ry. Debenture Stock -	5,345	10	4
						112,878	7	4
					1894.			
					Jan. 1. By Balance, viz.:—	£	s.	d.
					Mortgages, amount invested in - -	72,000	0	0
					Amount appropriated as loans to capital account - -			
					£ s. d.			
					1875–15,004 9 2			
					1893–24,873 18 2			
						39,878	7	4
					Cost of six cottages at Crowthorne - -	1,000	0	0
		112,874	7	4		112,878	7	4

VI.—An Account of the "Scholarship Fund" for the Year 1893.

Dr.					Cr.		
1893.		£	s.	d.	1893.	£	s.	d.
Dec. 31. To amount paid to Scholars during the year, viz.—					Jan. 1. By balance from last account -	141	12	8
					Dec. 31. „ revenue account for amount transferred therefrom, being Scholarship Fund of 3*l.* 15*s.* for each boy in school during the year -	1,435	0	0
Open Scholarships - -	1,226 13 4				„ revenue account for amount transferred therefrom, being the cost of military exhibitions during the year - - -	2,216	13	4
Wellesley Scholarships - -	133 6 8							
Wellesley Exhibitions - -	60 0 0							
		1,420	0	0				
„ Amount paid to Military Exhibitioners during the year -		2,216	13	4				
„ Examiner's fees, and cost of printing and advertising -		46	14	6				
„ Amount spent on decorations in chapel at the wish of J. Laing, Esq., being the sum accumulated under his son's scholarship, and which had not hitherto been applied -		266	13	4				
		3,950	1	2		3,793	6	0
					„ „ balance (deficit) carried forward to 1894 Account - - -	156	15	2
1894.								
Jan. 1. To Balance (deficit) from 1893 account - - -		156	15	2		3,950	1	2

VII.—An Account of the "Prize Fund," 31st December 1893.

Dr. **Cr.**

—	Principal.			Interest.		
1893.	£	s.	d.	£	s.	d.
Dec. 31. To Amount expended in prizes and gifts during the year	-	-	-	162	7	11
To Balance carried down	4,147	5	0	76	9	10

—	Principal.			Interest.		
1893.	£	s.	d.	£	s.	d.
Jan. 1. By Balance from last account	4,147	5	0			
By Balance amount of Interest unexpended	-	-	-	64	8	4
By Amount of dividends during the year, less Income Tax, but including Dividends accrued to December 31st on—						
L. & N.W.R. 3 °/₀ Debentures:—						
Derby Gift (£51 4s. 1d.)						
Walter Prizes (£8 12s. 6d.)				59	16	7
Consols, Dividend (free of Income Tax):—						
Benson Scholarship (£9 4s. 4d.)						
Lord Derby's French Prize (£5 18s. 0d.)						
Major Frew's Prizes (£29 13s. 0d.)						
Willan's Prize (£4 5s. 8d.)						
Capitalised Interest (£2 5s. 4d.)	-	-	-	51	6	4
Midland Railway 3 °/₀ Debentures, "Parsons' Prize"	-	-	-	1	18	1
Midland Railway 4 °/₀ Preference Stock, "Penny Memorial Gift"	-	-	-	15	5	7
By Amounts received in cash from—						
H.R.H. Duke of Connaught, K.G., for "the Prince Consort's History Prize"	-	-	-	5	0	0
The Lord Archbishop of Canterbury for "Divinity Prize"	-	-	-	5	0	0
The Rev. E. C. Wickham, supplementing "Penny Gift" interest	-	-	-	5	0	0
Anonymous Donor, do.	-	-	-	20	0	0
Archdeacon Freer, for "Greek Prose Prize"	-	-	-	3	0	0
Sir John Pender, for "Eve Essay Prize"	-	-	-	5	0	0
Prince Ghica, for "Classical Prize," 1892	-	-	-	3	2	10
	4,147	5	0	238	17	9

1894.

	£	s.	d.
Jan. 1. By Balance, viz.:—			
Midland Railway 3 °/₀ Debentures (Parson's Prize)	49	19	9
Midland Railway 4 °/₀ Perpetual Preference Stock, "Penny Memorial Gift"	524	18	7
L. & N. W. Ry. 3°/₀ Debentures (Lord Derby's Gift)	1,517	10	4
Walter Prizes	299	10	5
Consols:—			
Benson Scholarship	317	0	0
Lord Derby's French Prize	200	0	0
Major Frew's Prizes	1,000	0	0
Willan's Prize	157	1	6
Capitalised Interest	81	4	5
	4,147	5	0
By Amount of interest unexpended	-	-	-

				76	9	10

VIII.—An Account of the "Durand Scholarship" on 31st December 1893.

Dr.

——	Principal.	Interest.
	£ s. d.	£ s. d.
1893.		
Dec. 31. To amount paid to the "scholar" during the year	- - -	36 0 0
To Balance carried down -	1,674 7 11	18 14 4
	1,674 7 11	54 14 4

Cr.

——	Principal.	Interest.
	£ s. d.	£ s. d.
1893.		
Jan. 1. By balance from 1892 account	1,674 7 11	
By amount of interest unexpended -	- - -	0 14 3
Dec. 31. By Dividends during year on—		
India 3½ °/₀ Stock - 53 11 0		
Less Income Tax - 1 9 11		
	- - -	52 1 1
By Dividends on Consols (free of Income Tax) - - -	- - -	1 19 0
	1,674 7 11	54 14 4
1894.		
Jan. 1. By Balance, viz.:—		
Cost of 1,530*l.* 1*s.* 10*d.* £ s. d.		
India 3½ °/₀ Stock - 1,602 15 5		
Cost of 70*l.* 17*s.* 9*d.*		
Consols - - 71 12 6		
	1,674 7 11	
By Amount of interest unexpended -	- - -	18 14 4

REPORT

OF THE

BOARD OF VISITORS,

APPOINTED BY

THE SECRETARY OF STATE FOR WAR,

FOR THE INSPECTION OF

THE ROYAL MILITARY ACADEMY, WOOLWICH,

In the Year 1894.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED FOR HER MAJESTY'S STATIONERY OFFICE,
BY HARRISON AND SONS, ST. MARTIN'S LANE,
PRINTERS IN ORDINARY TO HER MAJESTY.

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JOHN MENZIES & Co., 12, Hanover Street, Edinburgh, and
90, West Nile Street, Glasgow; or
HODGES, FIGGIS, & Co., Limited, 104, Grafton Street, Dublin.

1894.

[C.—7484.] *Price* 1*d.*

Report of the Board of Visitors upon the Royal Military Academy, for the Year 1894.

1. The Board of Visitors inspected the Royal Military Academy on the 27th of June.

2. The Gentlemen Cadets were seen on parade without arms. Their health was stated to have been very good, the average daily sick having been 1·82 out of an average strength of 204, giving a daily per-centage of ·89.

3. The Board are pleased to be able to state that their recommendation made in the report last year, relative to the swimming-bath has been carried into effect, and that the expense of heating, including the wages of the man in charge of the machinery, is now defrayed out of public funds.

4. The Board were well satisfied with the working of the system upon which the mess is conducted at the Royal Military Academy.

5. The Board must again call attention to the necessity for the construction of an additional drill shed. They consider that such a shed could be constructed of corrugated iron of the following dimensions :—Length 100 feet, Breath 60 feet, Height 20 feet, inside, at a cost of £2,000, and they recommend that this service be taken in hand at once.

6. The Board visited the Hospital, which is in the same condition as last year. They were, however, given to understand that it is very shortly to be altered to suit requirements. Also that it is proposed to build an infectious hospital in the grounds of the Herbert Hospital, accommodation in which will be available for the treatment of the cadets. Subject only to this latter condition being fulfilled the Board consider that the Hospital accommodation will be sufficient for the purposes of the Academy.

7. For the most part the guns supplied for instruction are of an obsolete pattern, and the Board recommend that one 6-inch, 5-ton B.L. gun, and one 3-lb. Nordenfelt or Hotchkiss quick-firing gun be supplied as soon as possible.

8. The recommendation made by the Board last year as to the further instruction in electricity has been adopted by the appointment of additional instructors, by the enlargement of the building, and by a liberal supply of apparatus.

9. The Board have little to add to the opinion expressed by them last year with reference to the system of bifurcation, and having heard the opinions of the Governor and Assistant Commandant can only repeat that the advantages of bifurcation as now practised are more than outweighed by its disadvantages, which will, if continued, be productive of serious results.

10. They think it right, however, to direct especial attention to the paragraph in the Report of last year, in which this Board entirely concurs, that no amount of instruction that can be given during the two years which Cadets now pass at the Academy can by any possibility be considered adequate for the completion of the instruction of officers of Artillery any more than it can be for that of officers of Engineers.

11. They consider that the best method for giving a practical knowledge of their profession to young officers of Artillery is to take advantage of the excellent school of gunnery at Shoeburyness, as the Engineers do of the S.M.E. at Chatham, thus giving effect to the recommendation of the Royal Commission of 1869, that the education of the young Artillery officers should be continued after leaving the Academy by a thoroughly systematic course of instruction in practical Artillery, and that a short course at that school should form a *regular part* of the system of instruction of *all* young officers of Artillery on first entering the service.

12. The necessity for this is the more evident when the very inadequate apparatus supplied for instruction of the Cadets is compared with the appliances provided at

the School of Gunnery at Shoeburyness, and with those which should be found in any good school of instruction in Artillery and without which all such instruction must be very imperfect.

13. The Board being of opinion that the instruction for both services is not carried in all subjects to the extent desirable for each, recommend that, now that the system of bifurcation has been in operation for five years, its working should be considered by a special committee in which the two services should be represented, with a view to laying down a compulsory course adapted for both services alike, rendering therefore unnecessary the continuance of bifurcation. Such voluntary subjects might be added, under certain conditions as should be considered advisable, for promoting higher knowledge in any particular subject, it being clearly understood that all young Officers, on first joining the Artillery, should go through a short course (say for six months at least) at the School of Gunnery at Shoeburyness, where, as an encouragement to work, it is worthy of consideration whether an Examination to be held at the termination of the course should not confer the privilege of selection of post.

14. The Board visited the workshops, which are well provided with forges and lathes worked by steam power. They were informed that work in these shops, which have been erected at considerable expense by the War Department, used to be very popular with the Cadets, and that they were constantly full of an evening, as many as 140 names being on the books as workers. Recreation of this kind is not only conducive to health, but must lead to a knowledge of machinery and to skill in the use of tools and in the application of material, which cannot be otherwise than of great utility to those who acquire them in their subsequent careers as Officers of Artillery and Engineers. It is, therefore, with regret, that the Board found that the use of these workshops by the Cadets has almost entirely ceased, and they strongly recommend that efforts should be made to induce the Cadets to take advantage of the excellent opportunity afforded them while at the Royal Military Academy to acquire the practical mechanical knowledge and skill which work in these shops would give them.

15. The Board observe that the vacations at Sandhurst and Woolwich are of different lengths, and at different periods of the year. It appears to the Board that it would be better if the vacations at the two establishments were at the same periods, and that, if possible, they should coincide with those at other educational institutions.

HAMPDEN.
ARTHUR D. HAYTER.
J. L. A. SIMMONS, Field Marshal.
H. A. SMYTH, General.
D. C. DRURY-LOWE, Lt.-General.
FRED. MIDDLETON, Lt.-General.

ALEX. DELAVOYE, Colonel,
Secretary.

APPENDIX A.

ROYAL MILITARY ACADEMY.

Woolwich, 27th June 1894.

Distribution.	Staff Officers and Professors.								Gentlemen Cadets.	Detachment, R.A.									Detachment, R.E.		Detachment, M.S. Corps.		Civil Department.							Academy Servants.		Total.	
	Governor.	Assistant Commandant.	Lieutenants of Cadet Company.	Adjutant and Quartermaster.	Chaplain.	Medical Officer.	Professors and Instructors.	Total.		Sergeant-Major.	Quartermaster-Sergeant.	Gunnery Instructor.	Gymnastic Instructors.	Staff Sergeants.	Superintending Clerk.	Staff Clerks.	Trumpeters.	Gunners (Officers' Servants).	Quartermaster-Sergeant.	Sappers.	Sergeants.	Privates.	Modeller.	Modelling Smith.	Chemical Assistant.	Laboratory Boy.	Draughtsman.	Smith and Engine Driver.	Master Tailor.	Male.	Female.	Persons.	Horses.
Effective present	1	1	3	1	1	1	30†	38	202	1	1	1	3	7	1	4	2	4	2	6	1	3	1	1	2	1	1	1	1	78	7	369	1
Sick in hospital	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sick at home	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–
Rusticated	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Absent with leave	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Absent without leave	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
In quarantine	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	1	1	3	1	1	1	30†	38	205	1	1	1	3	7	1	4	2	4	2	6	1	3	1	1	2	1	1	1	1	78	7	372	1
Over establishment	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wanting to complete	–	–	–	–	–	–	–	–	35	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	36	–
Establishment	1	1	3	1	1	1	30	38	240	1	1	1	3	7	1	4	2	5	2	6	1	3	1	1	2	1	1	1	1	78	7	408	1
Attached	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

* Two Corporals (temporary).

† Includes three temporary Instructors.

APPENDIX B.

ABSTRACT showing the Public and other Schools at which the GENTLEMEN CADETS of the ROYAL MILITARY ACADEMY were educated.

School at which educated.	Direct.	Assisted.	Total.
Eton College	4	3	7
Harrow School	5	3	8
Winchester College	3	1	4
Rugby School	5	—	5
Charterhouse	7	8	15
Westminster School	—	3	3
St. Paul's School, West Kensington	8	3	11
Dulwich College	1	2	3
Repton School	2	—	2
Uppingham School	3	1	4
Haileybury College	1	2	3
Cheltenham College	16	1	17
Clifton College	13	4	17
Wellington College	7	2	9
Marlborough College	4	5	9
United Service College, Westward Ho	3	1	4
Oxford Military College	3	—	3
Malvern College	3	1	4
Newton Abbott College	2	1	3
Fettes College	1	2	3
Merchiston Castle School	—	1	1
Edinburgh Academy	—	1	1
Dover College	—	1	1
Bath College	4	—	4
Lancing College	1	—	1
Brighton College	2	1	3
Bradfield College	3	1	4
Trent College	—	1	1
Mercer's School, London	—	1	1
Bedford Grammar School	14	3	17
Portsmouth Grammar School	4	1	5
Tonbridge Grammar School	2	—	2
Highgate Grammar School	1	1	2
Sutton Valence Grammar School	1	—	1
Queen Elizabeth's School, Ipswich	1	—	1
Ipswich College	1	—	1
Blundell's School, Tiverton	3	—	3
Trinity College School, Stratford-on-Avon	2	—	2
Sedbergh School, Yorks	1	—	1
Victoria College, Jersey	—	1	1
Eastbourne College	1	—	1
Wimbledon School	—	1	1
Private, Foreign, and other Schools	3	13	16
Total	135	70	205

APPENDIX C.

TABLE showing the Parentage of the GENTLEMEN CADETS.

Rank or Profession.	No.
Peers	—
Baronets	1
Members of Parliament	1
Officers of the Army	89
Officers of the Navy	4
Clergymen	7
Legal Profession	10
Medical Profession	10
Civil Service	14
Indian Civil Service	16
Civil Engineers	7
Private Gentlemen, Merchants, &c.	46
Total	205

APPENDIX D.

NUMBER of CADETS at each Rate of Contribution.

Rates of Payments.	No. of Cadets.
Queen's Cadet - - - -	1
At £20 per annum - - - -	4
„ £40 „ - - - -	22
„ £60 „ - - - -	48
„ £70 „ - - - -	6
„ £80 „ - - - -	3
„ £150 „ - - - -	121
Total - - -	205

APPENDIX E.

RETURN showing the AVERAGE AGE of CADETS who received their COMMISSIONS during the past Year.

—	Years.	Months.
July 1893 - - - - -	19	6
February 1894 - - - -	19	7

APPENDIX F.

MEMORANDUM as to the NUMBER of GENTLEMEN CADETS who have lost a Term through Failure at Examination, Sickness, or otherwise, during the past year.

Through failure, 20 ; viz., 10 in July 1893, and 10 in February 1894.
(1 of the above having fallen more than one term behind the batch with which he joined, was removed.)
Through sickness, 7.
Through rustication, 1.
Withdrawn from Royal Military Academy, 2.
Died, 1.

ALKALI, &c. WORKS REGULATION ACT, 1881.

THIRTIETH ANNUAL REPORT

ON

ALKALI, &c. WORKS,

BY THE

CHIEF INSPECTOR.

PROCEEDINGS DURING THE YEAR 1893

PRESENTED TO THE

LOCAL GOVERNMENT BOARD

AND TO THE

SECRETARY FOR SCOTLAND.

(Presented pursuant to Act 44 & 45 Vict. c. 37.)

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1894.

[C.—7367.]

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THIRTIETH ANNUAL REPORT

ON

ALKALI, &c. WORKS,

BY

THE CHIEF INSPECTOR.

PROCEEDINGS DURING THE YEAR 1893.

TO THE LOCAL GOVERNMENT BOARD.

My Lords and Gentlemen,

I have now the honour of presenting my report of work done under the Alkali, &c. Works Regulation Act. The number of registered works had been largely increased by the Amending Act of 1892, which brought several new manufacturing processes under its provisions.

The number of works registered in England, Ireland, and Wales, up to the close of 1893 was 1,046, showing an increase of 136 on the preceding year. There are also 127 works registered in Scotland. Concerning these, a separate report is presented to Her Majesty's Secretary for Scotland.

The increase of the work of inspection caused by the Act of 1892 is, however, best shown by the number of distinct processes of manufacture that now come under it, as several of these may be carried on at a work previously registered. There are now 1,495 processes of manufacture under inspection as against 1,225 in 1892, showing an increase of 270. Adding the 208 processes under inspection in Scotland the total number is 1,703.

Of the works now on the register, a small minority only are alkali works, the larger number being those in which some of the processes named in the Schedules to the Acts of 1881 and 1892 are carried on.

The following table shows the number of the alkali, and of the other registered works, as they occur in the various districts into which the country is divided for the purposes of the Act.

NUMBER of REGISTERED WORKS.

—	Dist. I.—Ireland.	Dist. II.—North of England.	Dist. III.—Cheshire, N. Wales, and part of Lancashire.	Sub-Dist.—Widnes.	Dist. IV.—East Lancashire and Yorkshire.	Dist. V.—South Midland.	Dist. VI.—South-West of England and South Wales.	Dist. VII.—South-Eastern Counties.	Total. 1893.	Total. 1892.	Total. 1891.
Alkali works	2	14	14	15	31	9	6	10	101	100	113
Other works	48	106	93	10	155	152	181	200	945	810	798
Total	50	120	107	25	186	161	187	210	1,046	910	911

In many of the works several separate processes of manufacture are carried on, but such works appear only once on the register. The various processes in the several districts are classified in the following table.

SEPARATE PROCESSES of MANUFACTURE.

—	Dist. I.—Ireland.	Dist. II.—North of England.	Dist. III.—Cheshire, N. Wales, and Part of Lancashire.	Sub-Dist.—Widnes.	Dist. IV.—East Lancashire and Yorkshire.	Dist. V.—South Midland.	Dist. VI.—South-West of England and South Wales.	Dist. VII.—South-East of England.	Total. 1893.	Total. 1892.	Total. 1891.
Alkali	2	10	11	13	13	3	3	3	58	57	69
Copper (wet process)	—	4	3	3	2	2	2	—	16	17	17
Sulphuric acid	11	19	17	15	38	26	38	28	192	199	211
Chemical manure	17	39	12	2	9	46	37	47	209	214	219
Gas liquor	—	2	7	3	20	1	—	2	35	33	30
Nitric acid	—	2	4	1	34	18	4	22	85	91	93
Sulphate and muriate of ammonia.	26	39	28	4	50	69	70	82	368	359	348
Chlorine and bleaching powder	1	6	16	14	8	1	2	2	50	48	56
Sulphur recovery	—	3	—	—	4	5	1	6	19	22	19
Salt	—	7	38	—	—	6	—	—	51	60	59
Cement	2	17	1	1	3	8	9	54	95	95	94
Alkali waste	—	2	2	7	2	2	1	—	16	—	—
Barium and strontium	—	2	—	—	—	—	—	—	2	—	—
Antimony sulphide	—	—	—	—	—	—	—	3	3	—	—
Bisulphide of carbon	—	—	—	1	2	—	—	2	5	—	—

SEPARATE PROCESSES OF MANUFACTURE—*continued.*

—	Dist. I.—Ireland.	Dist. II.—North of England.	Dist. III.—Cheshire, N. Wales, and Part of Lancashire.	Sub-Dist.—Widnes.	Dist. IV.—East Lancashire and Yorkshire.	Dist. V.—South Midland.	Dist. VI.—South-West of England and South Wales.	Dist. VII.—South-East of England.	Total.	Total.	Total.
									1893.	1892.	1891.
Venetian red	—	3	2	—	—	4	4	2	15	—	—
Lead deposit	—	—	—	1	—	—	1	—	2	—	—
Arsenic	—	—	—	—	6	—	35	—	41	—	—
Nitrate and chloride of iron	—	—	—	—	41	7	—	—	48	—	—
Muriatic acid	—	—	—	—	11	7	1	9	28	23	25
Fibre separation	—	—	—	—	30	—	—	—	30	7	7
Tar	8	8	15	—	35	23	11	18	118	—	—
Zinc smelting	—	1	1	—	—	—	7	—	9	—	—
Total	67	164	157	65	308	228	226	280	1,495	1,225	1,247

No change has been made in the number of districts, but the boundaries have been slightly modified in order to equalise the amount of work in each. There are seven Districts under the care of six resident inspectors, Districts I. and III. being taken together. There is also a sub-district at Widnes in Lancashire with an additional inspector.

The number of visits made by them during the year to the works in their districts is stated in the following table, as also the number of tests or exact examinations of the gases found escaping through culvert or chimney.

NUMBER of VISITS to WORKS and TESTS made.

—	Dist. I.—Ireland.	Dist. II.—North of England.	Dist. III.—Cheshire, N. Wales, and Part of Lancashire.	Sub-Dist.—Widnes.	Dist. IV.—East Lancashire and Yorkshire.	Dist. V.—South Midland.	Dist. VI.—South-West of England and South Wales.	Dist. VII.—South-East of England.	Total.
Visits	104	603	472	500	815	606	766	958	4,824
Tests	45	517	734	1,133	684	365	540	595	4,613

The tests referred to above are the results of exact chemical determinations made of the amount of acid gas or other matter in a measured volume of the escaping air, taken either from main culvert, or, more usually, from the chimney itself. The analysis is either made on the spot by the help of portable apparatus arranged for the purpose, or the collected material is taken home for examination.

The following table shows the average result of all the tests made in each district throughout the year, and the general average for the whole is placed in comparison with the results of similar work done in the years 1892 and 1891. The amount of noxious gas, though now much below that of the legal standards originally imposed, still gradually diminishes year by year.

TABLE of the AVERAGE AMOUNT of ACID GASES escaping for each DISTRICT.

—	Dist. I.—Ireland.	Dist. II.—North of England.	Dist. III.—Cheshire, N. Wales, and Part of Lancashire.	Sub-Dist.—Widnes.	Dist. IV.—East Lancashire and Yorkshire.	Dist. V.—South Midland.	Dist. VI.—South-West of England and South Wales.	Dist. VII.—South-East of England.	Average. 1893.	Average. 1892.	Average. 1891.
Hydrochloric acid in chimney gases. Grains per cubic foot.	0·070	0·126	0·060	0·090	0·066	0·100	0·100	0·110	0·090	0·093	0·081
Hydrochloric acid. Amount escaping compared with that produced. Per cent.	0·830	1·990	0·968	1·880	1·590	2·800	1·380	2·292	1·716	1·937	2·182
Acid gases escaping from the sulphuric acid chambers, given as SO_3. Grains per cubic foot.	1·500	1·600	0·820	1·280	1·210	1·410	1·500	1·250	1·320	1·284	1·320
Acidity of chimneys given as SO_3. Grains per cubic foot.	0·950	0·796	0·640	0·673	0·490	0·670	1·010	0·610	0·730	0·768	0·700
Acidity of gases from manure works, given as SO_3. Grains per cubic foot.	0·490	0·144	0·380	0·510	0·104	0·230	0·260	0·270	0·298	0·272	0·326

In the first line of the table is shown the amount of hydrochloric acid found escaping in one cubic foot of the exit air, it is 0·09 grain, or less than one-half of the limit fixed by the Act, which is 2 grains per cubic foot of the gases escaping into the atmosphere.

The second line shows the amount of the same acid gas found escaping into the air, but there it is stated as a percentage of the amount generated. By the Act it is made obligatory to condense and arrest 95 per cent. of all the hydrochloric acid generated, so that no more than 5 per cent. of it shall escape. Here it is gratifying to point out that the amount actually escaping throughout the year, taking the average of all the works, does not exceed 1·716 per cent. of the amount generated, or but slightly over one-third of the legal standard.

The next line gives the result of the examination of the numerous sulphuric acid chambers throughout the country. The limit for this, given in the Alkali Act, is 4 grains of sulphuric anhydride per cubic foot. The average of the amounts actually

found is only 1·32 grain, again about one-third of the legal standard.

In the fourth line is shown the amount of acid gas found in all the chimneys examined, without regard to the special acid that may be present, or its source. For this no standard is given in the Act. The amount is slightly less than that found last year.

In the last line of the table is given the amount of acid gas permitted to escape from chemical manure works. This acid gas arises from the action of sulphuric acid on ground mineral phosphates. It contains fluorine and is highly corrosive and offensive, but with care it can be almost wholly condensed. The amount escaping is on the average slightly under that which is equivalent to 0·3 grain sulphuric anhydride per cubic foot of the exit air. This is equal to about 5·5 per cent. of the whole, so that 94·5 per cent. has been condensed. Formerly the whole of these acid gases were allowed to escape freely into the atmosphere.

It is a matter of additional satisfaction to point out that, although these results have been obtained there have this year been only two prosecutions on account of contraventions of the provisions of the Act. There have also been two prosecutions on account of the non-registration of works.

PROSECUTIONS UNDER THE ACT.

Name.	Nature of Offence.	Penalty.
Bradburn & Company, Limited -	Escape of sulphuric acid - -	25*l.* and costs.
Phospho-Guano Company, Limited	Escape of acid gases from manure mixing.	20*l.* and costs.
Tipperary Gas Company - -	Non-registration of Works -	9*l.*
Godfrey Woodhead - -	Non-registration of Works -	6*l.*

ALKALI WORKS.

This class of works which gives the name to the Act fills now a gradually diminishing space in comparison with the other works that have been brought in. Of the 1,046 works registered under the Alkali Act, only 101 are there as alkali works, and in only 58 of these is the old alkali or soda-making process carried on. The remaining 43 are so registered because the work done in them comes within the original definition of an alkali work made use of in the Act, though no soda-making process is carried on in them.

For several years the ammonia-soda process has been a severe competitor with the older Leblanc method, and as far as the production of the main article, soda, is concerned, has outstripped its rival. By its means, however, there is no production of hydrochloric acid, chlorine, or bleaching powder, so that as these are ever in request the older process has maintained its ground by their help. They are the bye-products of the original manufacture.

The ammonia process has, however, made steady advance upon that of Leblanc, and, as the adjoining table shows, it has now nearly equalled it in the production of soda. It is, therefore, a matter of surprise to observe that the older process, which has flourished for more than a century, but seemed now to have received its death-blow, has during the last 18 months shown such renewed vitality that during that time five new Leblanc works have been started all of which are now in operation.

SALT DECOMPOSED in the LEBLANC and AMMONIA-SODA PROCESSES (including Scotland).

	1893.	1892.	1891.
	Tons.	Tons.	Tons.
Leblanc process - - - -	467,562	519,593	567,863
Ammonia-soda - - - -	349,609	304,897	278,528
Total - -	817,171	824,490	846,391

It is seen from this statement and from returns given in previous reports that the total amount of soda made has since 1890 been steadily declining. In that year the salt employed reached the amount of 855,029 tons. The diminution was last year less than in 1893, and would perhaps have been replaced by an increase if it had not been for the scarcity of coal, occasioned by the long-continued "strike," which for a time caused the stoppage of many of the works.

The new alkali process mentioned in my report of last year, proposed by Mr. F. Gossage, of Widnes, as a modification of that of Leblanc has made some progress, but still waits further development. His first step is identical with that of Leblanc, but he uses no lime in his black ash furnace; he produces ash similar to that of the ammonia process, but he uses no ammonia; he produces bleaching powder, but makes no tank waste.

DISTRIBUTION OF LIQUIDS IN CONDENSING TOWERS.

For the purpose of bringing liquids, whether it be water, sulphuric acid, or other solvent, into contact with gases, it is customary to allow the gas to pass up through a tower packed inside with coke, bricks, flints, bars of wood, or other intercepting material, over and amongst which the solvent liquid is made to percolate. In order to perform this effectually it is necessary to supply the liquid in measured quantity, and to distribute it evenly over the whole of the tower.

The accompanying drawing shows a very complete and carefully arranged apparatus for effecting this, recently erected by Mr. Allhusen for the condensation of muriatic acid, at the Gateshead chemical works. It is given here, with his permission,

INTERMITTENT SELF REGISTERING WATER DISTRIBUTOR.

Hcl.

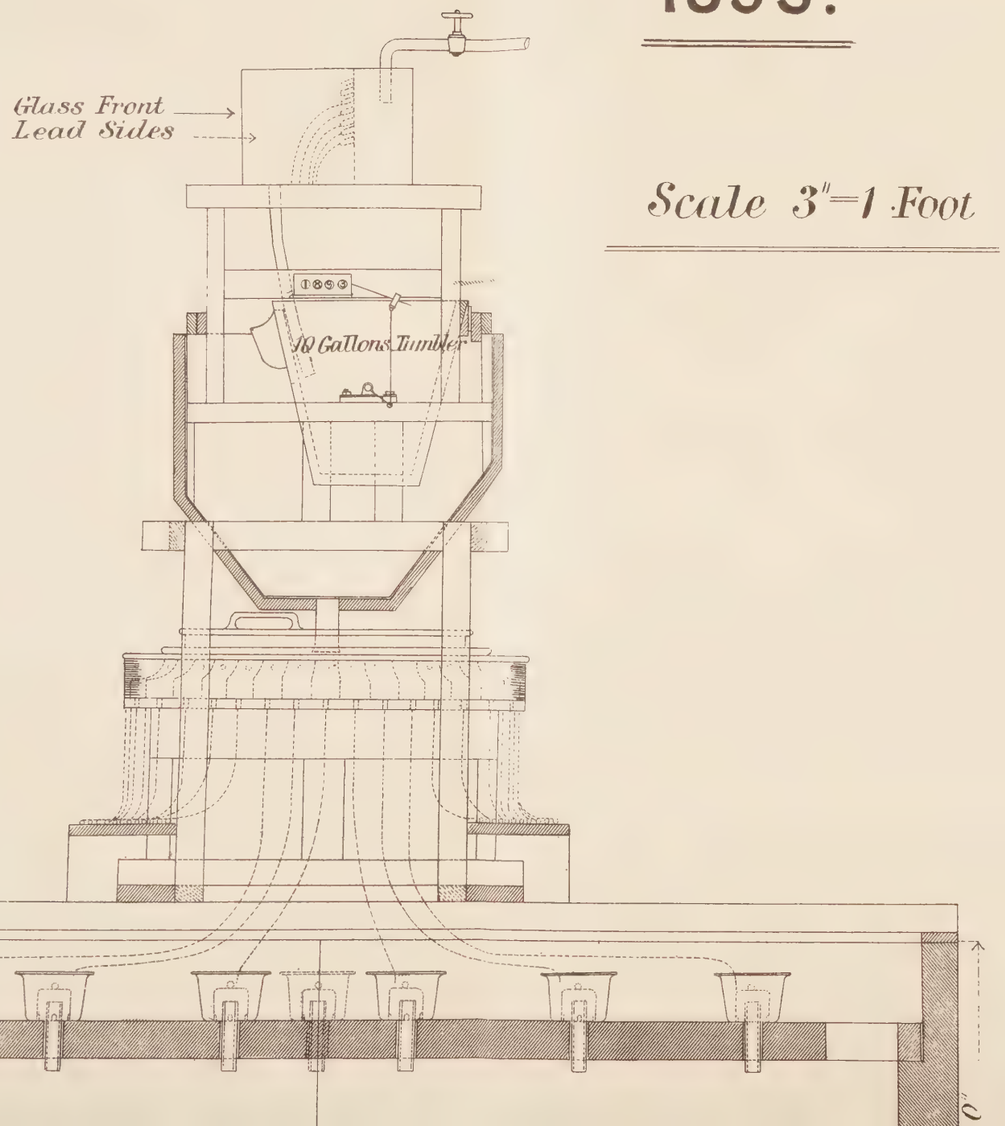
CONDENSERS.

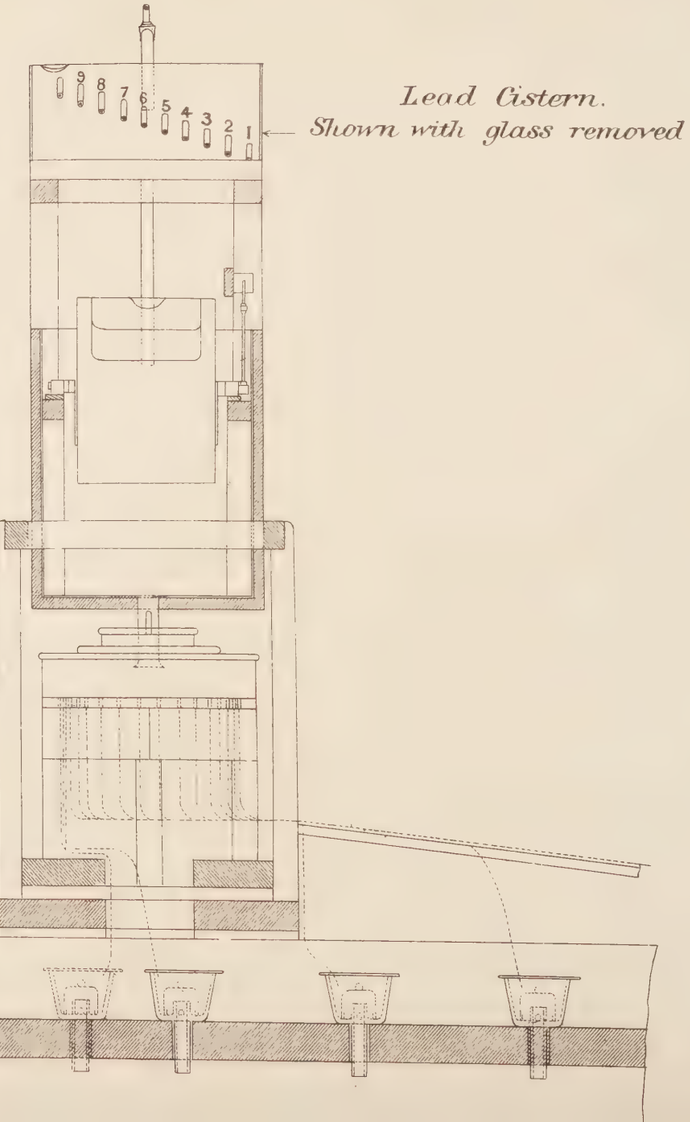
UNITED ALKALI Co. Ld.

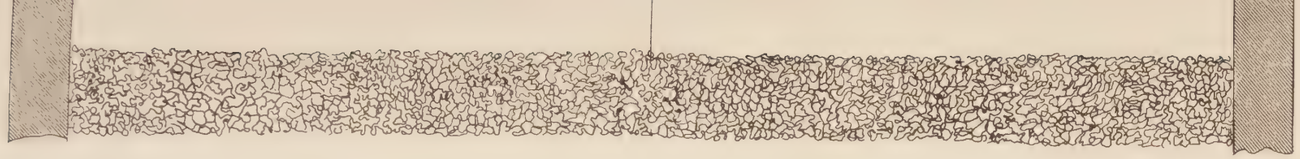
ALLHUSEN'S WORKS.

1893.

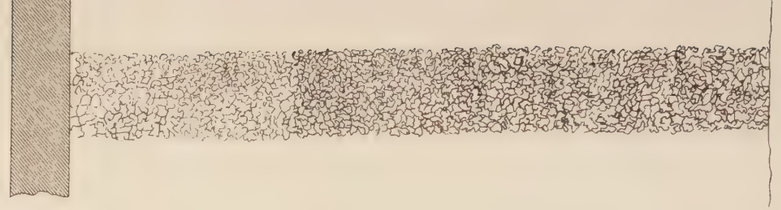
Scale 3″=1 Foot



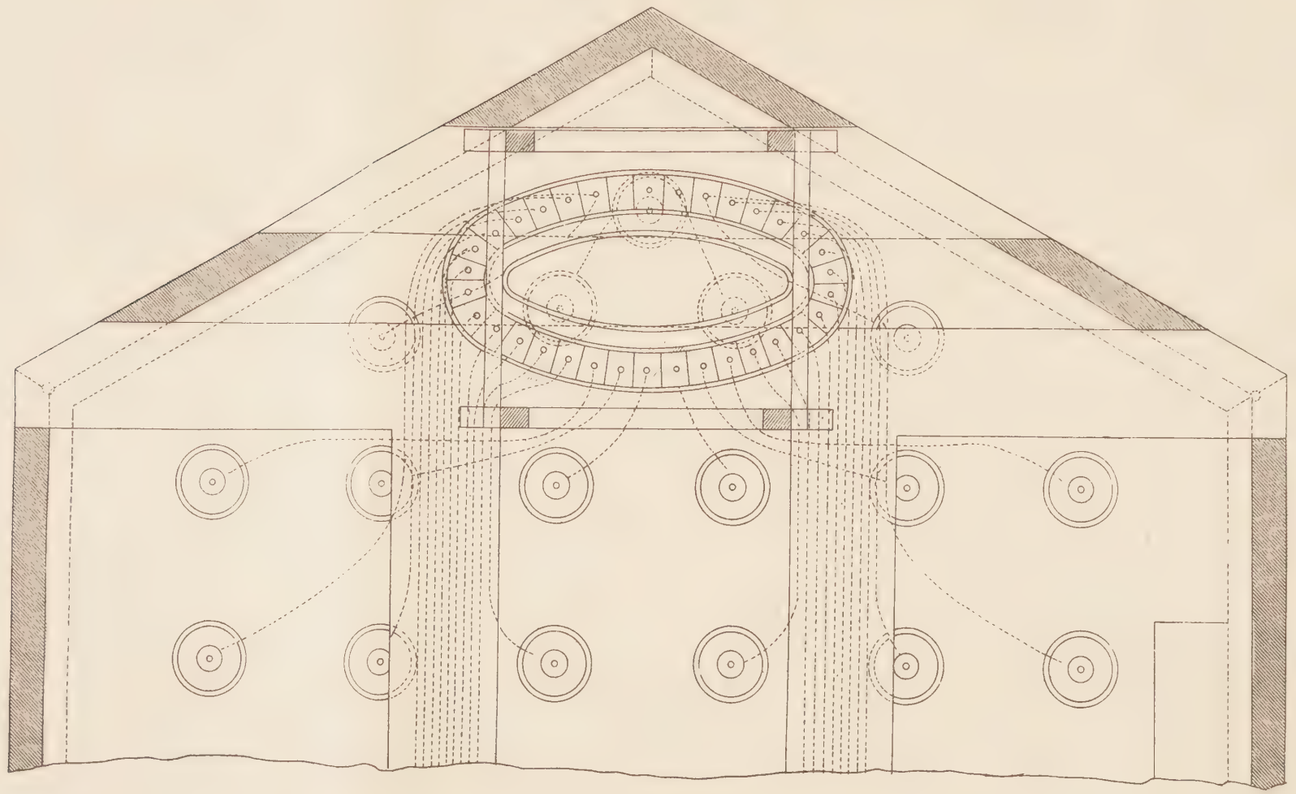




SIDE VIEW OF TUMBLER AND DISTRIBUTOR WITH
SECTION OF LEAD LINED CISTERN AND CONDENSER TOP.



FRONT VIEW. (CISTERN SHOWN IN SECTION.)



½ PLAN OF HEXAGON.

WYMAN AND SONS, LTD., LITH., LONDON 5755.4.94

in the hope that it may serve as a guide in the erection of apparatus for the condensation of gases generally. The small tank which first receives the supply of water is provided with a number of holes furnished with short nozzles from which the water may flow out into the tumbling box below. Each of these holes is at a lower level than the one before it, and the number of them through which water will flow out at any time will depend on the amount supplied by the main pipe above. If this is small, the flow may be through the three or four lower nozzles, if more is turned on five or six may be flowing, and thus it can readily be seen whether the amount of water supplied at one time is greater or less than at another by simply counting the number of nozzles through which it is flowing. The cock in the supply pipe can, therefore, be readily adjusted so that the flow shall be maintained through the desired number of nozzles, and by simple inspection it can at any time be quickly ascertained whether the required quantity of water or other liquid is flowing. This simple and most useful device was designed by Mr. W. L. Rennoldson, manager at the works. From the small gauge tank the water flows into a tumbling box below, from which it is thrown alternately on one side or the other of the tower, filling the pipes which distribute it over every portion.

Cement Works.

It cannot be said that any radical improvement has been made in the construction or method of working cement kilns so as to obviate the dense white vapour which escapes from most of them. The use of the chamber kiln, where the heated gases pass over a bed of wet slurry and escape up a high chimney, is an improvement upon the small kilns where the smoke passes out at a much lower level. The high chimney carries the smoke to a greater distance, thus relieving the immediate neighbourhood. Many attempts have been made to arrest this fume, but hitherto without much success. Mr. Edmund Ashby, of Southampton, has been successful in burning more completely the smoke of the kilns, and thus diminishing the fœtid smell which is often prevalent, especially in those places where clay from river beds is used in the manufacture. This he has done by charging the kilns lightly adding fuel and material gradually and more frequently than is commonly done. When a kiln is charged to the top with fresh fuel and slurry, the upper portion of the material is for a long time exposed only to a moderate temperature, no opportunity being afforded for completely burning the smoke and offensive vapour that are given off, until the fire has burnt upwards from the bottom and thoroughly kindled the whole. Mr. Ashby avoids this prolonged smoky condition of the kiln by charging lightly and often, so that at no time is there a large quantity of fresh material above the fire. In this way he has prevented the offensive smell that may arise from the use of Southampton clay, and much of the smoke and vapour too commonly given off from cement kilns.

The Nitric Acid Chlorine Process.

Last year in two works this interesting process for the manufacture of bleaching powder was on its trial. Many difficulties from the outset overtook the undertaking in Ayrshire, so that the work was never fairly started, and the process there has been for a time abandoned. The attempt made in Cheshire was not more successful, so that in both places the method lies under the shadow of failure.

Sulphate of Ammonia Works.

It is a matter of great satisfaction to be able to report that no complaint has been brought during the past year against any of these works. Although this formerly most offensive manufacture is carried on at 368 places in England, &c., and at 59 places in Scotland, in all at 427 works, yet the public may be said to be quite ignorant of their presence. Many of the places where the operation is carried on are in crowded neighbourhoods, and even in fashionable watering places, for the chief material employed is the condensed water of the gas works, and as the carriage of this to a distance is expensive, the manufacture of the sulphate of ammonia is best performed on the spot. The gas liable to be set free is sulphuretted hydrogen, and that in dangerous quantities, but so far is this now controlled and all escape prevented, that none outside the factory are aware that the manufacture exists.

Probably this immunity from nuisance has led to an extension of the manufacture where formerly, from ignorance or otherwise, the material was wasted, fearing the complaints that might arise if attempts were made to use it. It will be seen from the following table that the amount produced has increased from year to year. It has now reached 152,762 tons, which at present prices has a value of more than 2,000,000*l*. This considerable sum is the reward for carefully saving that which at one time was wasted or rejected; the mere rejection causing a nuisance.

Amount of Sulphate of Ammonia produced in the United Kingdom.

	1893.	1892.	1891.
	Tons.	Tons.	Tons.
Gas works	112,179	110,748	107,950
Iron works	8,833	11,000	6,290
Shale works	28,485	23,105	26,600
Coke and carbonising works	3,265	4,973	2,766
Total	152,762	149,826	143,606

The preceding table shows the amount of sulphate of ammonia manufactured in the United Kingdom and Ireland, and the sources from which it is obtained. It will be seen that the

increased production has been in the gas and the shale distilling or paraffin oil works, while in the iron and the carbonising works there has been a falling off in consequence of the stoppage of many of the works during the recent coal strikes.

An important step is now being made at the works of the Oldbury Alkali Company, in the attempt to manufacture cement from the waste carbonate of lime which remains after the extraction of sulphur from the "tank waste" of alkali works by the Chance-Claus process. It would be most desirable to find a useful application for this refuse material, which has now to be stored in large masses in the neighbourhood of the alkali works. The cement already produced stands well all the tests usually applied, and it is to be hoped that longer experience will confirm the favourable opinions now held respecting it. If it proves to be ultimately successful, this will offer a useful application for a very large quantity of material now entirely waste.

The Amended Act of 1892.

The Act to amend the Alkali, &c. Works Act of 1881 came into force on April 1st last, and brought 13 new groups of works under its operation.

The Chance-Claus Process.

The first of these groups consists of works for the recovery of sulphur from the tank waste of the alkali manufacture. Many of these had already come under inspection as forming portions of registered alkali works, so that the effort to regulate them was not wholly new. Many improvements have been made since the process was first adopted in 1889, chiefly in the details of the apparatus. Great care has been necessary in the structure and arrangement of the very numerous cocks and pipes which form part of it; and so much success has been attained in this respect that it is possible now to pass through these works without perceiving the smell of sulphuretted hydrogen, although enormous volumes of that gas are hourly generated. It may, indeed, be said that complaints of nuisance arising from the escape of gas from this source have ceased; and no accident arising from its inhalation by workpeople has been reported during the year. The care necessary to keep all cocks, pipes, and vessels tight, so as to secure this immunity from escape, will be better realised when it is stated that at one of the larger alkali works, when in full operation, more than 5,000,000 cubic feet of mixed air and sulphuretted hydrogen are dealt with every 24 hours.

The application of the Chance-Claus process is now so far advanced that already apparatus for treating the whole of the tank waste of St. Helens and of Widnes has been constructed. Most of that produced on the Tyne is also so treated, as is that at Oldbury and Wednesbury.

In all, about 35,000 tons sulphur is thus produced annually when the whole of the apparatus is in operation. The amount produced last year was about 31,350 tons.

Although improvements have been made in carrying out the Chance-Claus process, in simplifying the apparatus employed and thus reducing the cost, yet no advance has been made towards rendering the decomposition of the sulphuretted hydrogen more complete. The gases escaping at the final exit from the process still contain both sulphurous acid and sulphuretted hydrogen, in amount equivalent to nearly 15 per cent. of the sulphur contained in the "waste" under treatment. None of this sulphuretted hydrogen, however, is allowed to escape into the atmosphere, the mixed gases are passed through a fire or through heated flues with sufficient air so that sulphurous acid is the only remaining gas.

Deposits of Tank Waste.

Although this method of treating the tank waste and recovering a large proportion of the sulphur contained in it has been very successful, still during the past year a considerable quantity of untreated waste has been deposited at Widnes, and has needed much watchfulness to prevent a recurrence of the old nuisance arising from its heating by exposure to the air. In some other districts, where the soda manufacture is carried on on a smaller scale, the amount of waste is not sufficient to warrant the erection of a Chance-Claus apparatus. In these places the manufacturers have to fall back on the established methods of depositing the waste, that of treading and beating it so as to keep a face on the embankment which shall be impervious to the wind. The necessary care and labour to effect this is not obtained without expense, but the waste can be so laid that no nuisance arises from it if adequate attention is given.

Drainage from Tank Waste.

Unfortunately, an exception to that statement must be made in cases where any drainage flows from the bank. In some places this is continually going on, arising either from springs rising up under the mass and percolating through it, or from surface water. This soakage, known as yellow liquor, gives trouble in many parts of the country. It contains a soluble oxy-sulphide of calcium, which, on exposure to the carbonic acid of the air, gives off sulphuretted hydrogen. An incrustation and insoluble deposit are also continually forming, which tend to stop up the channels and watercourses. Now that the pollution of rivers attracts more attention than formerly, great complaint is made of the evil arising from these sources.

Under Clause 6 of the Alkali Act, the owner of land on which tank waste has been deposited is required to adopt the best practicable means for abating the nuisance that may at any time arise from it. It has been my duty this year to take action under this clause in order to compel an owner of land in Lancashire to take steps to abate the nuisance arising from a deposit of this material at a great distance from the chemical works whence the waste

originally came. The deposit was formed more than 25 years ago, but the drainage still continues. In this case an effort is being made to cut off the supply of water which has found access to it and is percolating through it. If this attempt is not found successful, the expedient will be tried of causing the soakage from the bank to gravitate through beds of oxide of iron, the beds to be used alternately, the one not in use to be turned over and exposed to the air for revivification. Where these yellow liquors are found near the chemical works, it is usually not difficult to devise means for dealing with them, but where they occur in the country, many miles from any chemical work, as in the case to which I have alluded, the problem is not an easy one to deal with. There are, however, many of these cases, and they are attracting increased attention. Unfortunately the evil is not one which will cure itself in any moderate time.

Barium, &c. Works.

The works next mentioned in the Schedule to the amended Alkali Act of 1892, are those for the preparation of barium, strontium, sulphide of antimony, and bisulphide of carbon. From all these sulphuretted hydrogen is liable to be discharged. None of the works are large, nor are they numerous. At present 10 only are registered. They are placed under the provisions of the Act, as each had in turn been the subject of complaint and an alleged source of considerable nuisance. The methods of treating sulphuretted hydrogen that are now well known have been found successful in the case of each of these works. It is either absorbed in oxide of iron or brought under the action of fire.

Venetian Red Works.

The class of works which next follows, taking them in the order of the schedules, is that for the manufacture of Venetian red, crocus, &c. These materials consist mainly of the higher or red oxide of iron, which is usually prepared by the roasting of sulphate of iron. This operation causes the discharge of a mixture of sulphurous and sulphuric acids, which usually have been allowed to escape into the air. The number of these works now registered is 15, a number that probably will be increased. Some of them are of considerable extent, and discharge into the air an amount of sulphur acids equivalent to many tons of commercial oil of vitriol during the year. There is considerable difficulty in dealing with these acids, as no means may be employed which would interfere with the furnace draught. As the production of particular shades of colour is aimed at, no interference with the working of the furnaces can be allowed. Bearing, however, these conditions in mind, it has been found possible to separate by cooling and condensation, also by contact with water, the sulphuric acid contained in the gases; the sulphurous acid, however, does not lend itself to this treatment. It is but sparingly soluble in water, and is not condensed on cooling. A method I

have proposed is, however, now on its trial, and appears likely to be successful. It is that of leading the mixed hot gases through a tower or chamber filled loosely with light scrap iron. Water percolates down through the mass and forms a solution of sulphate of iron, which may be evaporated to the crystallising point by the waste heat of the furnaces in which the Venetian red is roasted. Thus the otherwise noxious acid gases are arrested and made to do service again in a fresh round of operations. The sulphate of iron thus formed is furnaced for the production of more Venetian red, and the acid is again caught in the scrap iron tower. In this way the acid, instead of being thrown into the air, causing nuisance, may be used over again repeatedly in a succession of operations.

Lead Deposit Works.

The number of these works is very limited, two only being at present registered. In them the sulphate of lead, which deposits in the sulphuric acid chambers, is smelted and reduced to metallic lead. In this operation much sulphuric and sulphurous acids are thrown off, which have hitherto been allowed to pass up with the chimney draught and be carried into the atmosphere. Now that the works have come under the provisions of the Alkali Act, these acid gases are caused to pass up a wash tower before reaching the chimney, and the acidity is brought down to about 0·5 grain SO_3 per cubic foot, or that of ordinary coal smoke. The offensive odour which has hitherto accompanied the operation is also arrested.

It may be mentioned here that the necessity of specially naming in the Act a class of works of which only two are registered is caused by the practice held to be obligatory of naming all the separate processes of manufacture under which any noxious gas may be discharged. If, on the other hand, the sulphuric acid gas had been named, and all those processes from which it is liable to be discharged, brought under the Act, then these and all other processes of manufacture from which this gas might escape would have come under its provisions without being specially named.

Arsenic Works.

The introduction of these works has brought a great increase of labour to the inspector in whose district they are principally situate. Two classes of works are included under the clause. First, those in which arsenious acid, the white arsenic of commerce, is prepared from the ore, and secondly, where this arsenious acid is further oxidised into arsenic acid by the action of nitric acid. From those of the former class, the white arsenic itself is liable to escape, being carried away by the chimney draught, while in the latter class it is the nitric acid, or the lower oxides of nitrogen, which escape, so that they come more properly under the head of works where nitric acid is employed, than under that of arsenic works, for no arsenic is liable to escape from them.

Of the former class, the arsenic works proper, 35 are now registered. They are for the preparation of arsenious acid, commonly called white arsenic or arsenic, and are all situated in Cornwall and the western portion of Devonshire. The arsenic is obtained by roasting arsenical pyrites in a reverberatory furnace. In this case arsenic is the only valuable product. It is also obtained as a bye-product in the roasting of tin and copper ores. The details of the process, the forms of furnace, and the methods now adopted for preventing all escape of the arsenical fumes, are well described by Dr. Fryer in the portion of this report devoted to District VI., of which he is the resident inspector (*see* pages 92 to 96).

The inspection of these works had been much called for by residents in the district where they are found, and the necessity for the adoption of some remedial measures was shown by the frequent litigation, brought about by the alleged destruction of cattle through eating grass said to be poisoned by the arsenic too freely distributed through the air from the chimneys up which it had been carried by the draught. The arsenic driven off by the heat of the roasting furnace was caught and retained, as far as possible, in long flues, culverts, and settling chambers, but, although these were often of great extent, reaching, in one case, a length of 2,895 feet, or more than half a mile, and having a capacity of 60,795 cubic feet, yet arsenic was always liable to pass away. In one case a test of the chimney gases showed the presence of as much as 7·40 grains arsenic in a cubic foot of the gases passing into the air, and small flakes of it were seen falling continually as in a mild snow shower.

It seemed obvious that some kind of filter or a wash tower must be applied to arrest the residue which escaped the settling chambers. Wash towers had been tried in a few places, but, though they were in part successful in stopping the arsenic, yet by this means it was only transferred from the air to the water, which, passing into a neighbouring stream, might do as much or more damage in places to which it would thus be carried. Also, water does not readily take hold of finely divided dry solid matter suspended in the air. A dry filter was therefore advised, and was found to be quite successful in arresting the arsenic completely, and thus saving a certain amount of material that would otherwise be lost.

The materials hitherto used for the filter are brushwood, gorse, &c. (which should be so arranged as to be readily shaken up by bars introduced through openings in the walls of the structure, and the loose arsenic thus caused to fall off into a chamber below. The draught in this way remained unimpeded. As brushwood is, however, too quickly destroyed by the action of the acid gases which accompany the arsenic, some more durable material is sought for. The effect of such filters has been to arrest almost the whole of the arsenic, bringing it below one-tenth of a grain per cubic foot of the chimney smoke on the average. The results of many examinations of the air in the smoke culverts and

chimneys of the arsenic works, showing the extent to which the fumes are now arrested, are given in the detailed report of District VI. (*See* page 93.)

In the latter class of arsenic works, namely, works where nitric acid or a nitrate is used in the manufacture of arsenic acid or an arseniate, there is no danger of the escape of arsenic but of nitric or nitrous acid. When nitric acid or a nitrate is used to bring about the oxidation of a metal, &c. red nitrous fumes are given off. These are highly noxious, and it is of the utmost importance that they should be prevented from escaping into the air. One method of dealing with them has been to lead them into a sulphuric acid chamber, where they would be utilised in the acid manufacture. An objection to this course is that the supply of such nitrous fumes, being a bye-product in an intermittent process, is not sufficiently regular to conduce to the efficient working of the apparatus. The fumes in some cases are brought to a tower packed with flint stones, over and among which strong sulphuric acid is allowed to percolate. This absorbs the nitrous acid, and can then be supplied regularly to a sulphuric acid chamber by passing it down the Glover tower and thus relieving the supply of nitre.

Another and more common method in the case of the arsenic acid manufacture, is to lead the red fumes, together with steam and air, into columns packed with coke. The acid is thus re-oxidised and brought back into the condition of nitric acid, ready to be used over again in a further operation. This method of condensation by means of re-oxidation is so nearly perfect that the loss of nitric acid from all causes is less than 5 per cent. The process had already come under inspection, as it was one for the formation of nitric acid, and as such came under clause 4 of the schedule to the Alkali Act of 1881.

Nitrate and Chloride of Iron Works.

The following clause (9) deals also with the lower oxides of nitrogen which are generated when nitric acid is used in the preparation of nitrate or chloride of iron, and the same remarks apply. The nitrous fumes are dealt with as in the case of the preparation of arsenic acid. The inspectors have had no difficulty in procuring the adoption by manufacturers of efficient means for dealing with these noxious gases. For details of the extent to which efforts in this direction have been carried, I would refer to the special report of District IV., at p. 60 of this Report.

Muriatic Acid Works.

Clause 10 has brought under the Act a number of works in which muriatic acid is produced by other methods than by the decomposition of common salt in the soda manufacture. Prominent among these is a process for the recovery of muriatic acid from galvaniser's dippings. In the process of coating articles of iron with zinc, commonly called galvanising, they are first cleansed from the usual coating of rust or oxide by being dipped in

muriatic or in sulphuric acid. This is also the case with the thin sheet iron before being dipped into the bath of melted tin in the manufacture of tin plates. The sulphate of iron thus formed can be recovered on concentrating the liquor and allowing it to crystallise, but the chloride of iron liquors, not being crystallisable, were run to waste, causing in many districts serious pollution of the streams. Recently these liquors have been treated by a process devised by Mr. Thomas Turner of Birmingham. He allows them to flow gradually upon the hearth of a reverberatory furnace. Here the chloride of iron is decomposed by the heat, the muriatic acid gas is driven off, and is caught in a wash tower similar to those in use in the alkali works. As this method of condensing muriatic acid gas is so well known there has been no difficulty in its adoption at all the works coming under the operation of this clause.

Fibre Separation Works.

Among the many services which chemistry has rendered to the arts, that of providing means for separating the fibres of wool, cotton, and silk is not an unimportant one. Based on a simple process for separating cotton from woollen materials, a very large trade has sprung up for rejuvenating woollen rags. Even if the fabric had contained a cotton warp, or had been sewn with cotton thread, by first removing the cotton, then cleansing the rag, and finally by mechanically separating the woollen fibres from one another and shaking out the dust, a new white wool is produced, which may be compared, not unfavourably, with the original wool in appearance. This, under the name of "shoddy," enters, it is said, largely into the fabric of new cloth. In order to rid the woollen rags of the cotton which they may contain they are exposed to the action of hydrochloric acid gas. The details of the method, and of the apparatus employed, are fully described by Mr. Carpenter in the detailed report of his district (*see* p. 71.) The rags, laid loosely on the shelves of an air-tight acid proof chamber, are exposed for several hours to the vapour of hydrochloric acid. At the end of the operation it was customary for all the acid, which was not retained by the rags, to be discharged into the air, to the great injury of the machinery in neighbouring mills. No less than 30 of these shoddy mills are now registered under the Alkali Act, and already, in nearly all of them, means have been adopted by which the residual hydrochloric acid can be condensed. This is done by simply drawing the acid-laden air through small columns filled with coke, down which water percolates. The acid is thus washed out and may be used in a further operation. It must be admitted that there has been some little difficulty in imparting to the Yorkshire shoddy men the simple lessons in elementary chemistry necessary for grasping the necessities of the position.

Tar Works.

The inclusion of this important class of works under the Alkali Act has added very greatly to the care of the inspectors. Already 118 have been registered. The conditions of these are

by no means identical, and the arrangements for preventing the nuisance, too often arising from such works, has been studied afresh in very many cases. The works differ one from another, partly because the material with which they deal, the tar of the gas works, is by no means a uniform material. This necessitates a special adaptation as to form and size of still and the method of working, so that precautions necessary in some cases are not applicable in others.

At present two parts of the process of tar-distillation have been held in view as being those requiring our first attention with the object of minimising the nuisance. These are, firstly, the free gases which escape from the condensers of the tar stills. They contain sulphuretted hydrogen, particularly at the beginning and end of the operation, and a considerable amount of light hydro-carbon vapour which does not condense at the usual temperature of the worms. Several methods have been successfully employed to prevent the escape of these gases. In some works they are led away by means of a steam jet, or a fan, and brought to a fire where they are readily consumed. In most cases a water seal is introduced between the still worm and the furnace to prevent firing back, though in some cases sufficient protection from this is thought to be secured by reducing the size of the pipe as it approaches the fire.

In other works these gases are made to pass through a bed of oxide of iron in which the sulphuretted hydrogen is decomposed and the accompanying vapours condensed. In others again the oxide of iron is replaced by slaked lime. Various methods have been adopted for collecting these gases. Some fix to the end of the tar still worm a swan-neck bend which thus traps the gases and they are led away by an upcast pipe. These pipes from all the stills unite in a main pipe by which they are conveyed to the furnace or the condensing apparatus. Perhaps a preferable plan is for the worm end to discharge into a box with air-tight cover, from the upper portion of which the gases can be led away. For these and other details reference should be made to the reports of the district inspectors which accompany this. Great difficulty has been found in dealing with these gases of the tar stills in the Eastern counties, where in many works the tar is found constantly liable to form a carbonaceous deposit in the still. This from time to time is liable to be in part suddenly removed so as to expose the over-heated bottom of the still. A violent eruption then takes place, which would be dangerous if there were an obstruction such as would be offered by a bent pipe or closed box at the end of the worm. The most serviceable arrangement there is the plain worm end fitted with a loose cap, from which a pipe rises to lead off the gases referred to.

The second important part of the tar works that has called for attention is the pitch bay. This is an open shallow tank of extended area into which the pitch is allowed to flow from the stills after the volatile portions have been distilled off. The temperature at the finish is very high. If the pitch were allowed to flow into the open air while at full heat, an

abundance of very acrid vapour would arise from it, sufficient to cause considerable nuisance both inside and in the neighbourhood of the works. It is therefore allowed first to flow into an intermediate closed vessel, where it may cool. It must, however, be removed from this while still warm enough to flow. The temperature must depend on the character of the pitch, three grades of which are commonly known, namely, "hard," "medium," and "soft," depending on the length to which the distillation has been carried; or more frequently the pitch may have been hard but softened by admixture with tar oil when in the intermediate or cooling vessel. Soft pitch will flow into the bay at a temperature of 160° F., but the hard pitch must have a temperature of from 300° to 400°. In some tar works an outflow chamber, styled a "French weir," is constructed between the still and the pitch bay. It is a brick tank with a division which does not reach to the bottom. The compartment on the still side of the division is closed in. Into this the hot pitch flows and for an outlet must pass under the dividing wall, then, welling up in front, overflows into the pitch bay. When a fresh charge of hot pitch flows from the still it displaces that which was already in the chamber and has become cool; that is pressed forward and made to flow into the bay, while the hotter portion taking its place waits in its turn until it has had time to cool. Some manufacturers have covered in these pitch floors with walls and roofing of galvanised iron. This is, however, chiefly applicable where soft pitch is worked. In the case of hard pitch explosive fires have been occasioned by covering the bay. I believe this has been brought about by a deposition of a highly carbonaceous hydrocarbon, which has been driven off from the still at the end of the distillation when the temperature had reached a very high point. This finely divided carbon is capable of ignition on exposure to the air. It is deposited under protection of a dense cloud of tar vapour, but when this is blown away by a slight gust of wind the carbon has become ignited and has transmitted the fire to the mixture of tar vapour and air, thus causing explosion with burst of flame. It will be seen that great circumspection is needed when dealing with these somewhat treacherous materials. It would be very desirable that all pitch bays should be covered in, but for the reasons given that cannot always be done. The pitch should, however, be kept in the still or cooler as long as is consistent with its flowing out into the bay.

The methods of dealing with the uncondensed gases from the tar stills, the method of cooling the pitch, the temperature at which it enters the pitch bay, and other details concerning the sanitary arrangements of tar works, differ so much in various works that for the sake of better comparison I have arranged such information as I have obtained on these points in tabular form. The time has not sufficed to make it complete, but it is satisfactory to notice how many of the manufacturers have already adopted means for dealing with those portions of their works from which nuisance is most liable to proceed.

Tar Works.

Register Number of Work.	Number of Stills used.	Capacity of Stills.	Type of Pitch Cooler used.	Temperature of Pitch as run from Still to Cooler.	Temperature of Pitch as run from Coolers to Open Beds.	Means used for Destroying Still Gases.	Means of Draughting Employed.	Remarks.
		Tons.		Degrees Fahrenheit.				
3	—	—	—	—	—	—	—	
6	—	—	Run direct to beds.	270	—	Oxide of iron.	—	
12	—	—	Iron cooler.	—	300	Burnt.	—	
14	—	—	—	—	—	—	—	
16	—	—	—	—	—	—	—	
28	—	—	None made.	—	—	Lime.	—	
36	—	—	Run into covered bed.	—	—	,,	—	
41	—	—	—	—	—	—	—	Plant to be reconstructed.
51	—	—	Iron cooler.	230	210	Lime.	—	
52	—	—	,,	—	—	Oxide of iron.	—	
59	—	—	,,	—	—	Burnt.	—	
62	—	—	Run into covered bed.	—	—	Oxide of iron.	—	
65	—	—	Iron cooler.	350	250	Lime.	—	
66	—	—	Run into partly covered beds.	—	—	,,	—	
78	—	—	No pitch made.	—	—	Oxide of iron.	—	
82	—	—	,, ,,	—	—	—	—	
90	—	—	Run direct to beds in covered shutes.	370	350	Burnt.	—	
95	—	—	Covered beds.	—	—	—	Chimney.	
96	—	—	—	—	—	—	—	
111	—	—	Iron cooler.	320	—	Burnt.	—	
113	—	—	,,	—	210	Lime.	—	

132	—	—	Iron cooler.	—	—	Lime.	—	
137	—	—	No pitch made.	—	—	,,	—	
154	—	—	Run direct to beds.	—	—	,,	—	
162	—	—	Run into covered bed.	—	—	—	Chimney.	
243	5	10	Iron boiler.	—	—	Oxide.	Steam jet.	Oil ; then water seal.
262	1	4	Sold as refined tar.	—	—	Burnt.	Chimney.	Still is a long ordinary boiler, heated with steam. Naphtha only removed.
869	1	10	None.	—	—	,,	Chimney and small steam jet.	
380	4	10	Covered tanks.	—	Nearly cold.	,,	,,	Gas from pitch coolers also burnt.
391	3	12½	Old boilers.	—	—	,,	—	Covered shed for pitch bed.
	2	7						Gases from coolers also burnt.
406	2	3,900 gals.	Large boiler with curtain in centre.	212 to 248	Practically cold.	Burnt.	Chimney and small steam jet.	Pitch gases also burnt.
	1	3,500 ,,	Pitch left two days and forced out to bed by pressure of hot batch pouring in.					
	1	1,600 ,,						
439	8	3,000 ,,	Iron boxes arranged so as to obtain air cooling on all sides.	—	—	,,	Steam injector.	Pitch gases also burnt.
467	1	5	None.	—	—	—	—	They simply distil very roughly, collecting the distillates in barrels.
471	5	2,000 gals.	Iron covered tanks.	—	—	Burnt.	Steam jet and chimney.	Pitch gases also burnt.
725	3	13	Cooled in still for asphalt for 48 hours.	—	—	,,	Pressure of lute.	No seal.
	1	2						
726	2	15	—	—	—	,,	Steam jet.	
735	1	6	Cooled in still.	—	—	,,	Pressure of lute.	

TAR WORKS—*continued.*

Register Number of Work.	Number of Stills used.	Capacity of Stills.	Type of Pitch Cooler used.	Temperature of Pitch as run from Still to Cooler.	Temperature of Pitch as run from Coolers to Open Beds.	Means used for Destroying Still Gases.	Means of Draughting Employed.	Remarks.
		Tons.		Degrees Fahrenheit.				
739	1	12	Iron boiler.	—	—	Burn .	Steam jet.	Pitch cooler gases also burnt.
766	8	12	„	—	350–400	Oxide.	„	
785	8	30	Covered channel, 100 yards.	—	—	„	„	
787	1	10	Brick chamber.	—	—	Burnt.	Chimney.	
821	2	13	—	—	360–470	Oxide.	Steam jet.	Light oils only removed.
829	2	2	Cooled in still for asphalte.	—	—	„	Pressure of lute.	
866	2	6¼ 7½	Cooled in still.	—	—	Burnt	—	
888	2	20	Covered pit.	—	—	„	Steam jet.	Also two oil stills.
889	2	15	No cooling vessel for lack of fall from still to pitch bed.	—	—	Oxide.	Pressure of lute only.	Also four oil stills connected with purifier.
	2	25						
890	2	7	Iron boiler.	—	—	„	„	
891	1	4	Cooled in still.	—	—	Burnt.	„	One rosin still.
892	1	2	Cooled in retort for asphalte.	—	—	„	„	Light oils only removed.
906	3	10	Iron boiler.	—	—	„	Steam jet.	One oil still.
1088	3	8	Tar kept in still, no cooler.	—	—	—	„	Preparing to burn gases.
1095	2	9	Cooler and closed bay.	—	—	Burnt.	„	Satisfactory.
1098	1	9	Cooler and open bay.	—	—	„	„	Exhaust condenser to pitch cooler.
1104	9	14	Cooler and closed bay.	—	—	„	„	Exhaust condenser to pitch cooler.
	6	16						

1105	6	10	Four coolers and open bay.	—	235	Burnt.	Steam jet.	French system to be used or pitch.
1117	3	10	Cooler and open bay.	—	—	Water.	"	The gases are blown into water.
1123	8	10	Cooler and closed bay.	—	—	Burnt.	Pump.	No condenser to cooler.
1132	3	12	Two coolers and open bay.	—	—	"	Steam jet.	French system of cooling pitch.
1133	4	19	Three coolers and open bay.	—	—	"	"	Luted condenser to pitch coolers.
1135	2	5	Tar kept in still. Open bay.	—	—	"	"	Luted condenser to pitch cooler.
1167	4	10	Cooler and closed bay.	—	—	"	"	Luted condenser to pitch cooler.
1170	2	8	Cooler and open bay.	—	—	"	"	Pipe condenser to pitch cooler.
1176	2	30	" "	—	—	"	"	No condenser to pitch cooler.
	1	20						
1177	1	9	" "	—	—	Oxide.	"	Luted outlet on top of cooler.
1178	1	5	Tar kept in still. Open bay.	—	—	—	"	
1186	2	10	Cooler and closed bay on French system.	—	—	Oxide of iron.	Deep Lutes.	Condenser on cooler.
1188	1	12	Cooler and open bay.	—	—	—	Steam jet.	Luted condenser to cooler.
1202	10	10	Cooler and open bay on French system.	—	—	Burnt.	"	Exhaust condenser to cooler.
1205	1	—	Not worked for pitch.	—	—	—	"	Horizontal still. No mechanical agitators.
1215	2	10	Cooler and closed bay.	—	—	—	"	
	2	6						
1218	2	8	Tar kept in still. Open bay.	—	—	Coke scrubber and alkaline water.	Chimney.	
1226	1	12	Tar kept in still. Open bay.	—	—	—	—	
1231	6	15	Six coolers. Open bay.	—	—	Burnt.	Steam jet.	Vertical condenser to cooler.

TAR WORKS—*continued.*

Register Number of Work.	Number of Stills used.	Capacity of Stills.	Type of Pitch Cooler used.	Temperature of Pitch as run from Still to Cooler.	Temperature of Pitch as run from Coolers to Open Beds.	Means used for Destroying Still Gases.	Means of Draughting Employed.	Remarks.
		Tons.		Degrees Fahrenheit.				
1240	1	3	Tar cooled in still. Open bay.	—	—	—	Steam jet.	Horizontal still. No mechanical agitators in stills.
1244	2	10	" "	—	—	—	"	
	2	7						
1246	3	20	Cooler and open bay.	—	—	—	"	No condenser to pitch cooler.
1247	1	30	" "	—	—	—	"	Pipe condenser on pitch cooler.
	3	16						
1250	1	5	Not worked for pitch.	—	—	Oxide of iron.	Deep Lutes.	
1252	4	10	Cooler and open bay. French system.	—	—	"	Steam jet.	Luted condenser on cooler.
	2	14						
1253	9	10	Cooler and open bay.	—	—	Burnt.	"	No condenser on cooler.
1256	3	10	" "	—	—	Oxide of iron.	"	No condenser on cooler.
1260	3	25	Cooler and open bay. French system.	—	—	—	"	No condenser on cooler.
		9						
		8						
1262	1	12	Tar cooled in still. Open bay.	—	—	—	"	
1267	2	10	Cooler and closed bay. French system.	—	—	Burnt.	"	Condenser to cooler.
1416	6	15	Iron cooler. Covered bays.	—	—	"	"	
1429	2	15	" "	—	—	"	"	
1465	2	5	Cooled somewhat by running through 30 feet of iron pipe.	—	—	"	"	

1466	1	5	—	—	—	—	—	Prepared tar only manufactured.
1469	4	10	Brick and iron.	—	—	Coke scrubber and oxide of iron.	Pressure of Lute.	
1472	4	25	Brick, iron, and French weir.	—	—	Oil scrubber and oxide of iron.	Pressure of Lute.	
1498	5	10	Iron.	—	—	Burnt.	Steam jet.	
1513	2	25	—	—	—	—	—	Nothing yet done.
1521	1	20	Iron.	—	—	Condenser and oxide iron.	Steam jet.	
1535	7	20	Iron.	—	—	—	—	Iron works, tar, very little offence from wormends.
1540	2	10	Brick and covered bay.	—	—	Burnt.	—	
1544	8	15	Iron coolers and covered bays.	—	—	Condensers, coke scrubbers, and oxide of iron.	Pressure of Lute.	
1556	2	29	Iron.	—	—	Burnt.	Steam jet.	
1562	12	10	Brick and French weir with covered bays.	—	—	„	Pump.	
	5	15						
1572	1	5	—	—	—	—	—	Prepared "tar" only manufactured here.
1575	2	6	Brick.	—	—	Burnt.	Pressure of Lute.	
1581	4	25	Iron cooler.	—	—	—	—	Nothing yet done with wormend gas.
	1	15						
1582	3	12, 13, 8	—	—	—	—	—	Nothing yet done.
1583	2	10	Iron.	—	—	Oxide of iron.	Steam jet.	
1584	2	25	Brick.	—	—	Burnt.	„	
1586	4	10	Brick and iron.	—	—	„	Pump.	
1587	1	5	—	—	—	—	—	Prepared "tar" only manufactured at these two works.
1775	5	—	Iron.	—	270	Oxide of iron purifier.	Pressure of still.	

TAR WORKS—*continued.*

Register Number of Works.	Number of Stills used.	Capacity of Stills.	Type of Pitch Cooler used.	Temperature of Pitch as run from Still to Cooler.	Temperature of Pitch as run from Coolers to Open Beds.	Means used for destroying Still Gases.	Means of Draughting Employed.	Remarks.
		Tons.		Degrees Fahrenheit.				
1785	3	—	Brick.	—	300	—	—	Intend to have an oxide of iron and lime purifier for absorbing still gases.
1798	2	20	Iron.	—	230	Oxide of iron purifier.	Pressure of still.	
1889	5	10	Iron (two).	—	356	—	—	Arrangements are being made to burn the still gases.
1927	3	10	„	—	200	—	—	Arrangements are being made to burn the still gases.
1932	2	9	Brick.	—	350	Oxide of iron purifier.	Pressure of still.	
1934	5	—	„	—	300	—	—	Intend to have an oxide of iron and lime purifier for absorbing still gases.
1935	1	15	„	—	—	Burn.	Pressure of still.	
1958	—	—	—	—	—	—	—	Registered in error.
1968	2	—	Iron.	—	246	—	—	Have been idle for some time, but intend to have an oxide of iron purifier for absorbing the still gases.
1970	2	—	„	—	356	—	Pressure of still.	At present they wash the gases with a stream of water.
2101	2	10	Brick chamber and dipping well.	—	248–334	—	—	*See* remarks in text, p. 113.
2122	19	[illegible]	„ „	—	338–374	Burnt.	Exhaust engine.	Entirely satisfactory.

2146	48	14	Closed brick coolers, delivering into French coolers.	—	320	Burnt.	Steam jet.	Entirely satisfactory.
2155	1	25	Iron tank cooler.	537	320	,,	Exhaust engine.	Patent pot still. Plant satisfactory.
	3	10						
2166	1	10	Old iron boiler. Pitch kept in still and cooler 12 hours each.	385	257	,,	Steam jet.	Entirely satisfactory.
2185	6	10	Pit covered with iron plate. Pitch run direct from still.	Very high	450	—	—	*See* remarks in text, p. 113. Altogether bad and unsatisfactory.
2221	3	10	Old steam boiler	—	—	Burnt.	Steam jet.	Means for treating still gases not yet inspected. Probably satisfactory.
2242	6	10	,, ,,	—	276–320	Oxide of iron.	Exhaust engine.	Satisfactory.
2243	2	10	Pitch run direct from stills after standing 24–36 hours into brick pit covered with iron plates.	323	323	Burnt.	Steam jet.	Unnecessary delay has occurred, treatment of gases not yet complete.
2266	5	10	Old steam boiler.	—	260–315	Oxide of iron.	,,	Treatment of gases not satisfactory.
2371	2	10	Brick chamber cooler.	—	308	Burnt.	,,	Not inspected since complete.
2285	5	12	Iron boiler-shaped cooler.	—	248–320	,,	,,	Satisfactory.
	1	7						
2318	3	10	Old steam boiler.	—	305	,,	,,	Plant dilapidated. Means for treatment of gases not yet seen in operation.
2320	5	40	Patent iron chamber coolers. Internal coil for heating next charge.	—	390	—	—	Three patent intermittent and one continuous still.
	1	75 tons per 24 hours.	—	390	390	Burnt.	Exhaust engine.	
2321	1	40	Patent iron chamber coolers.	—	390	,,	,,	One patent intermittent still. Means for treatment of gases not yet complete. Will be satisfactory.
	1	25						
	2	12						
2322	2	10	Old steam boiler.	—	320	,,	Steam jet.	Open to improvement.
2323	3	10	,, ,,	—	270–300	,,	,,	Satisfactory.

Continuous Tar Still.

The process hitherto referred to of distilling tar is intermittent. The still is charged with 20 or 30 tons tar and the fire kept up till the oils are worked off. The pitch is then run off and when the still has partially cooled it is charged again with a fresh quantity of tar. Thus the whole process is intermittent and much heat is lost by the repeated cooling down and re-heating of the apparatus. Recently, however, attempts have been made by Mr. F. Lennard of Messrs. Forbes, Abbott and Lennard, to construct a tar still that should work continuously, the tar being constantly allowed to flow in while the distillates and the pitch pass out without intermission. In this he has now been successful and has constructed a still which has been at work continuously for more than 12 months during which time about 4,000,000 gallons of tar have been passed through it. The operation of this is now considered to be so satisfactory that a larger still, one capable of dealing with 35,000 gallons tar in 24 hours is to be erected.

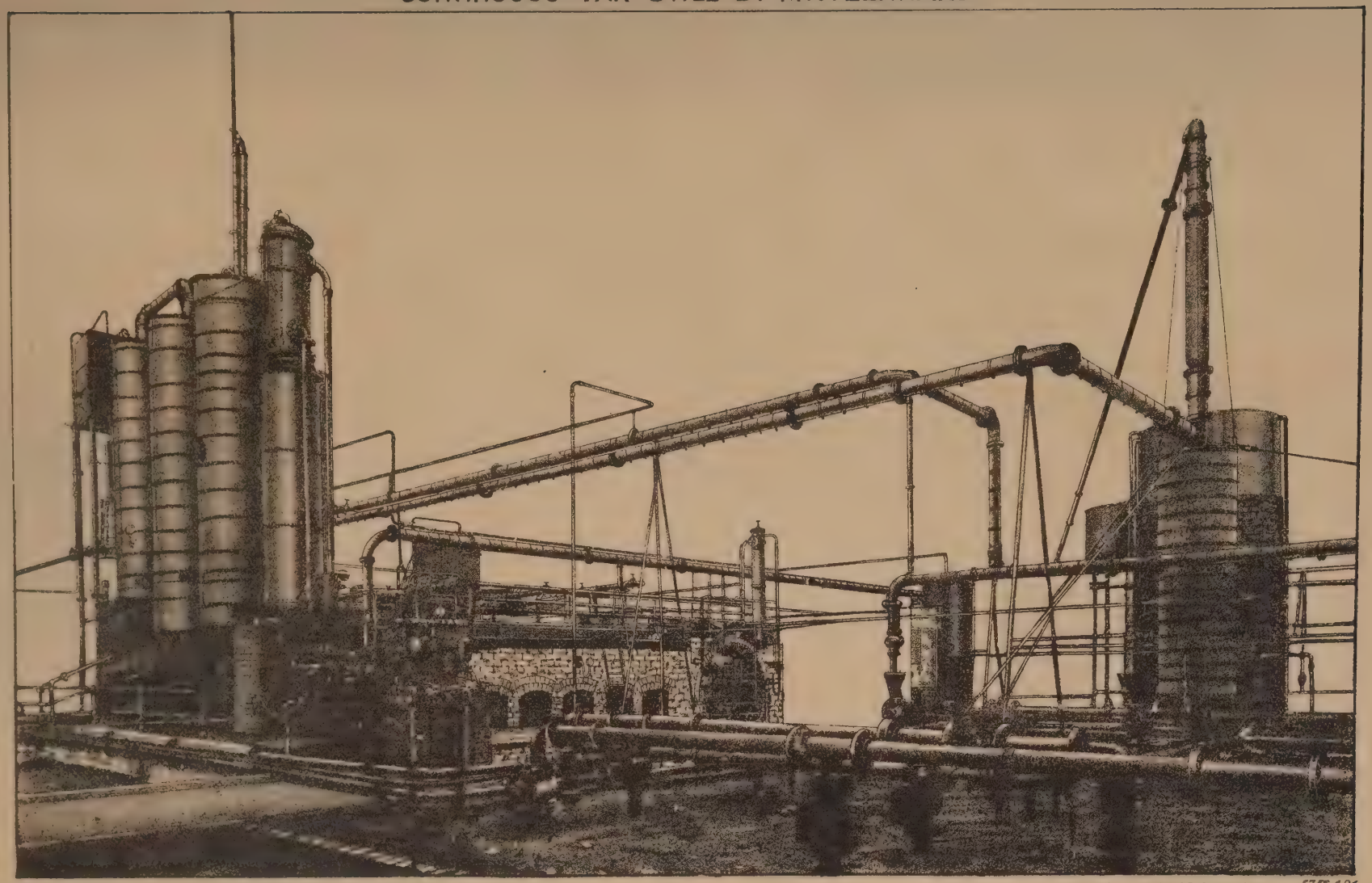
From an inspector's point of view the continuous still is much to be preferred to the intermittent. There is no opening of vessels for the charging or discharging of large quantities of material, no sudden changes of temperature, and none of the casualties that may attend the starting or stopping of a process. As to fuel there must be economy since the heat of the outgoing products is in great measure taken up by the incoming material. The loss of heat in cooling down the tar still is avoided, also the great injury caused by alternately cooling and heating the apparatus. For further detailed account of this apparatus see Mr. Sutton's report at page 115. The accompanying drawing shows the general construction of the still.

Mr. Lennard may, I think, be warmly congratulated on the advance he has made.

Felt Works.

In addition to those works where tar is distilled, works also in which it is highly heated come under clause 12 of the new schedule. Prominent among these are certain felt works, principally in Belfast. Here tar is heated in large open pots and conveyed into the felt works proper, to replenish a small tank through which the endless sheet of felt passes. On leaving the tank the felt passes between hot rollers. This operation is carried on in a closed workroom in which many women and lads are employed. The atmosphere of the place is offensively charged with tar vapour to an extent which must be highly injurious to the operatives. It has not been found easy to confine this vapour as constant free access to the tar tank must be maintained. Efforts are, however, made to overcome the difficulty, and I hope a satisfactory arrangement may be soon arrived at. The open pans in which the tar and pitch are first heated and melted are

CONTINUOUS TAR STILL BY Mr F. LENNARD.



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usually in a place detached from the main building. From these the tar vapours may be more easily collected; see sketch on page 36 in Mr. Ballard's report.

Zinc Works.

Many complaints have been brought against works for the smelting of zinc ores, not only on account of the sulphurous acid thrown off in the roasting process, but also of the cloud of white vapour which sometimes causes a fog which pervades the neighbourhood. Zinc is extracted from ores, some of which contain the sulphide and some others the carbonate of that metal. These are calcined, with a view to obtain in both cases an oxide of zinc. When the sulphide is roasted much sulphurous acid is given off. This operation, like the many other metallurgic processes whereby sulphurous acid is evolved, must be passed by for the present as no effectual means of arresting sulphurous acid from furnaces is known. The oxide of zinc is then mixed with finely divided carbon and heated in clay retorts to a degree sufficient to volatilize the zinc as it is reduced to the metallic state. This vapour of zinc condenses in the neck of the retort and the short pipe or nozzle attached to it and is removed from time to time and cast into cakes. It is from these retort nozzles that the white cloud of oxide of zinc proceeds, and as several hundreds of them are usually in operation together, the result is the formation of a dense cloud, which is carried by the wind for a considerable distance. It is with a view to the suppression of this white vapour, which in some places is much complained of as a nuisance, that these works have been brought under the Alkali Act.

The difficulty of dealing with this vapour is greatly increased by the fact of its arising from numerous small sources and that it is not met with in some enclosed furnace or flue. The first attempt was, therefore, to collect them by means of a projecting hood of sheet iron, and to draw them away by means of a fan or by the chimney draught. The hoods hitherto devised have, however, given but little satisfaction. They were in the way of the workmen, or they reflected too much heat on the heads of the men, or if removed further they failed to collect the fumes. Further attempts, however, will still be made.

A partial success can be reported in two works, where a determined effort has been made to solve the problem.

At the works of Messrs. Lysaght, near Bristol, a zinc furnace has been erected wherein the retorts are heated by gas, and the construction is such that the nozzle ends already referred to are enclosed behind loose iron plates which can be removed when necessary for the working. From above this enclosure the fume is led away into overhead iron trunks of great length, communicating with the chimney. This has the effect of relieving the furnace house of much of the fume which formerly filled it, and thus of affording great relief to the workmen. Much of the solid matter of the dust or fume settles in this

extended air flue, so that already several tons of material rich in zinc oxide have been removed. The lighter portion of the fume passes on to the chimney, but it is thus delivered at a higher level in the atmosphere than formerly and causes less nuisance in the neighbourhood.

Dry Filters

For treating more completely this dust-laden air, and in general for dealing with metallic and other fumes, I suggest the use of a dry filter composed of such materials as are best suited to the occasion. In the case of fumes of zinc, lead, copper, &c. coming from furnace operations, light waste scrap iron, such as thin sheet chippings, waste wire, &c. might be useful. A bed of 5 or 6 feet in thickness, and of considerable superficial area, might be supported on iron bars placed in a brick chamber. The smoke admitted into the cavity below would rise up through the filtering material and pass on its way to the chimney. If suitable holes were left in the sides of this chamber, iron bars might from time to time be introduced so as to shake up the scrap iron, &c. and cause the lead or zinc oxide to fall into the cavity below, thus keeping the filter clear. This form of apparatus has been used successfully in the arsenic subliming works of Cornwall. There, as the smoke is cool and in many cases moist, brushwood has been used in place of scrap iron, as this would readily be corroded by the acid gases. In zinc, lead, or copper works, however, where the smoke is hot and dry, the acid gases will have but little action on the metal.

The Classification of Works.

Regret has often been expressed that a more general classification of the works to be brought under the Act cannot be adopted, so that all those processes of manufacture from which certain noxious gases are discharged, should be brought under its provisions although each process is not named. Already the recent schedule is found to be incomplete. A complaint has lately been made of nuisance arising from a discharge of sulphuretted hydrogen from nickel works. Here the metal nickel is separated from its solutions by the use of this gas, some of which is liable to escape. But works for the preparation of nickel are not named in the schedule. If it were permissible to group all these as works from which sulphuretted hydrogen is liable to be discharged, then these and all those where a similar process is carried on, would be included.

Another process which might with advantage be included is that of recovering zinc from galvaniser's skimmings. All works in which zinc is extracted from the ore are included, but those now named escape although considerable nuisance may arise from them. It may be expected that every year will reveal some additional or some new process, which might with advantage be brought under the operation of the Alkali Act.

Among processes that do not come under the Act, and yet are concerned with the use or production of substances which, in connexion with other processes, come under it, may be named that for the production of chloride of sulphur. In one work for carrying on this manufacture the chlorine is obtained through a pipe from a neighbouring factory. The chlorine so brought into the chloride of sulphur factory may be allowed to escape to the injury of the neighbourhood, and the inspector under the Alkali Act would be powerless to interfere. If, however, the Act could be so framed as to direct the inspectors' attention to chlorine rather than the processes of its manufacture, then this and all similar cases would be included.

Work of the Inspectors.

This great increase in the number of processes which now come under the Act has brought much additional work on the inspectors. To meet the great pressure felt in District IV., which embraces East Lancashire and Yorkshire, 23 works have been transferred to the neighbouring District II., that embracing Northumberland and Durham. It may, however, be necessary to make some further adjustment, as the number of processes to be inspected in District IV. is still excessive. I cannot but express my satisfaction at the large amount of arduous work the inspectors have this year accomplished in bringing so great a number of new works already into conformity with the requirements of the Act. Yet the vista before them is ever open, their goal recedes, for the Act enjoins that the "*best* practicable means" shall be employed for preventing the escape of noxious vapours. Duty, therefore, advances with knowledge. There is much ground, however, for congratulation as to what has already been done.

The able reports they have each sent in of the work of the year in their respective districts follow this. Much interesting detail is given of portions of the work to which I have already alluded.

With this report is also given, in response to many applications, a collective index of all the annual reports published under the Alkali Acts since the date of the original Act of 1863.

I have the honour to be,
My Lords and Gentlemen,
Your most obedient Servant,
Alfred E. Fletcher.

March 1, 1894.

District No. 1.—Ireland.

Edward Geo. Ballard, Esq., *Inspector*.

Fifty works have been registered in this district during the year. The small salt works became exempt under the new Act, but the number of registered works has been maintained by the addition of five tar works, three sulphate of ammonia, and one cement work.

The number of separate processes carried on at the above works which come under inspection is given below :—

2 alkali manufacture.
1 bleaching powder.
11 sulphuric acid.
17 chemical manure.
26 sulphate of ammonia.
2 cement.
8 tar.

Total - - 67

Number of visits paid, 104; tests made, 45.

Alkali Works.

Two works of this class have been registered during the year, one of which merely roasts, occasionally, some nitre cake, and has consequently been brought under the above heading. Tests have only been taken at one of the works, viz., No. 258. The average escape of muriatic acid from the chimney of this work was 0·07 grain per cubic foot of waste gases. The total acidity of the gases was equivalent to 0·95 grain SO_3 per cubic foot. The amount of hydrochloric acid escaping compared with that produced was 0·83 per cent., the figures being identical with those of last year.

Sulphuric Acid Works.

These works are in good order, and with one exception there have been no tests exceeding the limits allowed by the Act. The works under this heading are mostly connected with manure manufacture. There is only one where brimstone is used, all the rest burn pyrites.

Table showing Average Escape for 1893.

Register Number.	Total Acidity as Grains SO_3 per Cubic Foot.	Material used.	Remarks.
No.			
216	—	Brimstone.	Works closing.
221	2·30	,,	
225	·72	,,	
226	·64	,,	
237	—	Pyrites.	Works idle all the year; resumed operations in November.
238	·84	,,	
245	3·15	,,	
247	1·87	,,	
252	2·12	,,	A high gale blowing on one of the days that the works were visited caused derangement of chamber, so the average is higher this year than usual.
255	·99	,,	
256	·90	,,	
Average	- 1·50		

District No. 1, Ireland—*continued.*

Chemical Manure Works.

Works of this class are conforming to the requirements of the Act. Wherever mineral phosphate is treated proper condensing arrangements for the noxious vapours evolved are provided. There is, however, room for some improvement in the wash tower at No. 255, this, it is hoped, will be brought about during the coming year. Whenever an opportunity has occurred tests of the condensers at the various works have been made. The results are given in the following table:—

Table showing Condensation effected by Manure Gas Wash Towers.

Register Number.	Total Acidity as Grains SO_3 per Cubic Foot.			Remarks.
	Inlet to Condenser.	Outlet from Condenser.	Per-centage escaping.	
No.				
247	10·80	·35	3·24	Works in good order.
249	4·00	·25	6·25	„ „
225	3·00	·20	6·66	„ „
255	10·00	2·00	20·00	Wash tower needs improving.
238	0·75	·05	6·66	Works in good order.
256	7·30	·10	1·58	„ „
Average -	5·97	·49	7·39	

At No. 248 they have just completed a mechanical mixer, den, and suitable wash towers, for the treatment of mineral phosphate, a process which has not hitherto been carried on at these works. It will shortly be in operation.

Sulphate of Ammonia Works.

These are carefully conducted. At No. 901, owing to the burning of the H_2S being unsatisfactory, an oxide purifier was advised and adopted.

Taking all the places where they make sulphate of ammonia in Ireland, the number of works with continuous system of distillation = 11.
„ „ „ intermittent „ „ = 15.
„ „ absorbing H_2S in oxide purifiers = 16.
„ „ burning the sulphuretted hydrogen = 10.

2950 tons of sulphate of ammonia were made in the district during the year.

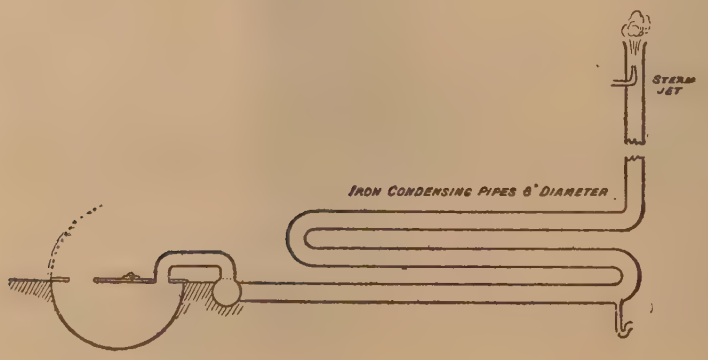
Cement Works.

There are two in the district, one of which is situated in the country and causes no nuisance. The other is in Dublin and has recently been renovated. They are large works and are carefully conducted. The gases from the kilns are led to chambers in which are stacked bricks of the material used in the manufacture, which are thus dried ready for the kilns. I have received no complaints of nuisance arising from these works.

District No. 1, Ireland—*continued.*

Tar Works.

Only five works of this description are registered as tar works, the others are covered by existing certificates. Of the tar works in the district three are for the distillation of tar and five are for the manufacture of roofing felt. Where tar is distilled, means for dealing with the noxious vapours have been provided. The other class of works, namely, those where roofing felt is manufactured, have given rise to some anxiety. The vapours evolved during the process of manufacture, both from the pans where the pitch and the tar are heated, and from the machines where the molten mixture is spread upon the felt by means of heated rollers, are most pungent and distressing to the eyes and lungs, especially in the case of those who are unaccustomed to the work. Wherever the melting pots are open the sheds are full of vapour, but in one or two instances attempts have been made to draw the vapours off from the top of the pots by means of a six-inch pipe, connected with a main, and inserted in the lid of each pot, one half of the lid being fixed and the other half made to open. The draught is assisted by a steam jet placed at the end of the main pipe. This main pipe may be of any length, and if exposed to the air serves as a condenser, in which the oils, &c., may collect and be afterwards utilised. Such an arrangement is in operation at No. 249, and may serve to show what can be done towards mitigating the nuisance arising from the process of melting the mixture of pitch and tar. The following is a sketch of the apparatus. Some pots are heated by steam and others by means of a fire placed beneath them.



With respect to the fumes arising from the felt machines, it is more difficult to suggest a practical way of dealing with them. Any sort of a hood that would obstruct the light, or prevent the workmen watching the felt as it leaves the tarring rollers, is out of the question. Small pieces of foreign material, if not immediately removed, cause a defect in the piece of felt, and this has to be done by the workman while the felt is hot, and as it leaves the rollers. Occasionally a nail or some other hard substance causes the machine to strike a spark and this sometimes sets the felt on fire; therefore, any sort of curtain or other inflammable material about the machine would be dangerous. However, the manufacturers have the matter under consideration, and perhaps before long some solution of the difficulty may be forthcoming. It is hoped that this may be so for the sake of the comfort of those employed in the works.

District No. 1, Ireland—*continued.*

Improvements during 1893.

At several of the works which come under inspection, many improvements have been effected, and they are given in the following list :—

No. 237. Rebuilt O.V. chamber and renovated works.
„ 219. Reconstructed their sulphate of ammonia plant and substituted continuous for intermittent system of distillation.
„ 248. Erected mechanical mixer den and wash tower for the treatment of mineral phosphates.
„ 239. Reconstructed sulphate of ammonia plant and substituted continuous for intermittent system of distillation.
„ 227. Oxide purifiers opened and cooling arrangements improved.
„ 908. Improved the sulphate of ammonia plant, and absorb the sulphuretted hydrogen in oxide of iron, instead of burning it.
„ 907. Absorb sulphuretted hydrogen in oxide of iron instead of burning it.

At some of the works in Ireland, although in good order and conforming to the requirements of the Act, there is still room for improvement in the plant, and it is hoped that during the coming year this may be brought about.

The Alkali, &c., Works Amendment Act, coming into operation in the early part of the year, has necessitated much travelling and loss of time in additional inspections, many of which have been useless, except in so far as they have resulted in deciding what works do not come under inspection.

Edward Geo. Ballard.

District No. 2.—England, North.

Bernard E. Smith, Esq., F.I.C., F.C.S., *Inspector.*

During the year ending December 31st, 1893, there were in this district 120 works registered under the Alkali Works Regulation Act, 1881, and Alkali Works Regulation Amendment Act, 1892. Of these, 14 were registered as "alkali," including wet copper works, the remainder being scheduled works of various description.

The number of separate processes under inspection was 164, consisting of :—

10 alkali.
4 copper extraction.
5 bleaching powder.
1 chlorine (chlorate).
19 sulphuric acid.
2 Chance-Claus sulphur recovery.
3 Claus sulphur recovery.
2 nitric acid.
39 sulphate of ammonia.
1 gas liquor.
1 liquid ammonia.
39 chemical manure.
7 salt.
17 ceme.
8 tar.
3 Venetian red.
1 zinc.
2 barium.

For the purpose of inspection 603 visits were paid to the works, and 517 tests were carried out.

District No. 2—*continued.*

ALKALI WORKS.

An additional small work on the Leblanc system has been erected and started during the year, the furnace for salt decomposition being on the Gaskel-Deacon plus-pressure pattern. The process in this work will only be carried as far as the manufacture of sulphate of soda, as the main object of the plant is the manufacture of hydrochloric acid, which is to be employed in the decomposition of sulphide of barium.

Eight additional Gaskel-Deacon furnaces have been built at a work in the district, and at the same work an entire new condensing plant to deal with the hydrochloric acid has been erected. It is giving the utmost satisfaction. The amount of hydrochloric acid passing away from the condenser outlet pipes never since the first week after starting having exceeded half a grain per cubic foot in the escaping air.

I have pleasure to report on the general high state of efficiency and repair of the plant in all the works of this class.

With regard to the escape of "low level" gases, I find that the dens under the roaster are only really successful when they also are fitted with bogie trucks into which the sulphate of soda is allowed to fall when drawn from roaster bed. If these are allowed to stay in the den some time after being filled little or no fume is given off when they are drawn out. The bogie system has an advantage from the fact that there is no double handling of the material.

The amount of salt decomposed in this district during the year amounted to 99,996 tons as compared with 93,200 tons in 1892. This is exclusive of copper works.

Results of tests:—

Registered Number of Works.	Grains HCl per Cubic Foot in Chimney Gases.			Per-centage Hydrochloric Acid Escape.	Average Total Acidity of Chimney Gases calculated as Grains SO_3 per Cubic Foot.
	Max.	Min.	Average.		
355	0·11	0·10	0·11	2·20	—
374	0·15	0·09	0·12	—	0·55
378	—	—	—	—	—
379	0·16	0·14	0·15	1·75	0·50
	0·18	0·14	0·16	—	0·55
386	—	—	—	—	—
393	0·11	0·09	0·10	1·90	0·50
	0·09	0·07	0·08	0·90	0·50
	0·09	0·08	0·09	2·20	0·40
405	—	—	—	—	—
407	0·14	0·10	0·12	2·10	0·60
	0·17	0·09	0·13	2·70	0·55
413	0·13	0·12	0·13	2·20	0·50
458	—	—	—	—	—
Average for District -			0·119	1·99	0·51

Compared with average of previous years:—

	Eight previous years.	1893.
Grains of HCl per cubic foot - - - -	0·113	0·119
Per-centage HCl escape - - -	2·700	1·990
Average Total Acidity - - - -	0·560	0·510

District No. 2—*continued.*

Copper Works (Wet Process).

One of the four works has been idle during the past year, but I am glad to say that steps are now being taken to thoroughly repair and put the place in order so that active work may commence early this year.

Results of tests:—

Register Number of Works.	Grains HCl per Cubic Foot of Smoke.			Average Total Acidity, calculated as Grains SO_3 per Cubic Foot in Chimney Gases.
	Max.	Min.	Average.	
353 { I.	0·16	0·10	0·13	1·10
353 { II.	0·16	0·09	0·13	1·40
366	0·10	0·06	0·08	0·90
414 { I.	0·26	0·11	0·18	1·40
414 { II.	0·22	0·14	0·18	1·70
415	—	—	—	—
District Average - - -			0·14	1·30

The amount of salt employed was 14,487 tons.

Compared with the tests of last eight years the escaping gases show a slight decrease in the amount of hydrochloric acid escaping, but an increase in total acidity.

	Eight preceding years.	1893.
Grains HCl per cubic foot - - -	0·140	0·14
Average Total Acidity - - -	1·450	1·30

Bleaching Powder Works.

There are five large plants at work in the district for the manufacture of this material. They are all in excellent repair and great care is taken by the various managers to reduce the amount of chlorine allowed to escape and so be wasted to a minimum. All the works have ample chamber space, and therefore can allow plenty of time for absorption. The average amount of chlorine in residual air is shown by test to be three grains. The output of bleaching powder was 39,109 tons, as compared with 36,000 tons in 1892.

Alkali Waste and Waste Drainage.

No fresh "waste" has been deposited in the district this year. All waste that is not treated by the Chance-Claus sulphur recovery process being taken out to sea. Nuisance is still caused, however, at times from the drainage from old waste heaps.

Chance-Claus Sulphur Recovery Process.

I am happy to say that complaint is now rare of nuisance caused by this process in the district, but there are still escapes of sulphuretted

District No. 2—*continued.*

hydrogen at times from the plant, especially when the "spent vessels" are blown off. The smell, however, is only momentary, and is caused in spite of all precautions, by the action of the carbonic acid in the spent waste acting on small quantities of sulphur liquors which collect in discharge pipes owing to leaky taps.

The method of dealing with the exit gases has undergone no improvement during the year, they are still burnt by being drawn through a specially constructed furnace. This certainly removes the sulphuretted hydrogen by converting it into sulphurous acid and so destroys the evil smell, but at the same time it greatly increases the acidity of the smoke, one chimney having usually smoke passing away from it containing as much as two grains of sulphurous acid to the cubic foot.

There were no less than 10,700 tons of sulphur recovered from "waste" last year in this district.

Claus Sulphur Recovery Process.

Three sulphate of ammonia works in the district deal with the "foul gases" by this process. Two have lime towers and "oxide of iron" purifiers to deal with exit gases, whilst in the third the gases are burnt in retort flue. Their united output of sulphur is only small.

Sulphuric Acid Works.

There are 19 of these works in this district. One small country work in connexion with a manure plant has been closed, and a new plant in connexion with a barium works has been erected.

The sources of sulphur used in the district are:—Pyrites, either "stone" or "smalls," brimstone, "spent oxide" and a "waste" from a barium plant containing a very high percentage of precipitated sulphur. At two works sulphuretted hydrogen is also burnt.

Register Number of Works.	Total Acids of Sulphur and Nitrogen calculated as Grains SO_3 per Cubic Foot in Exit Gases.			Remarks.
	Max.	Min.	Average.	
355	1·10	0·90	1·10	H_2S burnt.
357	2·70	1·40	2·10	
363	1·10	1·00	1·10	
367	2·00	1·70	1·90	
370	1·90	1·20	1·50	
373	2·90	2·70	2·80	
374	—	—	—	
379	1·00	0·90	1·00	
386	1·20	1·40	1·30	
393	1·00	0·90	1·00	
399	1·20	1·10	1·10	
405	2·60	2·00	2·30	
407	1·50	1·10	1·30	
413	1·20	1·10	1·10	
422	2·50	2·00	2·20	
425	2·20	1·60	1·90	
428	1·90	1·60	1·70	
463	2·00	1·90	1·90	
458	—	—	—	Propose to burn H_2S.
District Average - -			1·60	

District No. 2.—*continued.*

There is practically no alteration in the average acidity of the escaping gases from that of former years. No difficulty being experienced in keeping well within the limit allowed by the Act.

Pyrites burnt - - - - -	63,842 tons.
Brimstone burnt - - - -	102 ,,
Spent oxide burnt - - -	130 ,,

besides barium waste and sulphuretted hydrogen.

Nitric Acid Works.

Two only of these plants are at work in the district, and one of them is very small, only employing one cylinder. They are both kept in good repair.

Sulphate of Ammonia Works.

Thirty-nine of this class of works are under inspection in the district. The majority, of course, obtain their ammoniacal liquor as a bye product from the manufacture of illuminating gas, but I am glad to report that an additional large plant for the manufacture of coke by the Simon-Carvés process has been built and started during the year, making three at work in the district. From this source 810 tons of sulphate were obtained, out of 6,320 tons, the total output for the district.

Chemical Manure Works.

During the past year 39 of these works have been in more or less active operation. At 11 of these fish or animal offal forms part of the raw material, and it is from this material that the offensive smell arises during the treatment. Perfectly fresh offal gives rise to no nuisance, in fact it has the advantage when mixed with the mineral phosphate, and the mixture treated with sulphuric acid, that it prevents largely the escape of acid fumes, as on testing I always find that mixtures of phosphates and animal matter yield far less acid vapour than might be expected proportionately. As the material should be kept as fresh as possible and as the usual receptacles for transporting it are old wooden tubs, generally saturated with decomposing fish oil, &c., it may be readily understood that, however fresh it may be when placed in the tubs, putrifaction soon commences. At one of the works at my suggestion a trial is being made of using iron drums with tightly fitting covers. I am waiting the result of this inovation most hopefully. It has the double advantage of first keeping the air from the material, and secondly that after each time of use the drums are easily cleansed by washing.

There is but little change as regards the condensation of the acid gases to report, my tests showing an average for the district of 0·144 grains of acidity per cubic foot, calculated in terms of sulphuric anhydride.

Cement Works.

Little or no change has taken place in this class of works; in the district there are altogether 17 under inspection, the Tyne, the Wear, and Hull being the chief centres of manufacture. As the clay employed is much more free from organic matter than that employed on the Medway, little or no nuisance is caused by the works, the chief nuisance arising from dust.

Salt Works.

There has been no change during the past year in the condition of this class of works. They have all been fairly actively employed, and I am glad to report that at the same time the plant has been kept in good repair. At three of the works the waste heat from blast furnaces is employed for boiling down the brine. In the other works, where coal

District No. 2—*continued.*

is employed as fuel, the chimney tests show an average acidity of 0·56 grains of total acidity calculated as SO_3 per cubic foot, with an amount of chlorides and free hydrochloric acid equal to 0·155 grain per cubic foot.

Tar Works.

By the Act passed in 1892 this class of work was brought under inspection. I find that there are two occasions during the distillation of this substance when causes of nuisance are likely to arise; firstly, the escape of gases from the end of the worm of the condenser during the process of distillation, more especially at the early and final periods of the process, and secondly, at the time of the pitch "being run." The gases given off from still worm end are principally sulphuretted hydrogen and ammonium sulphide, but together with these there are always varying quantities of organo-sulphur compounds possessing a very disagreeable odour. In all the tar distilling works in this district, with the exception of two small ones, these gases are now conducted through pipes properly trapped by means of a water seal to some furnace or boiler fire and there burned. Sufficient time has hardly elapsed since the Act came into force to determine if this is the best available means. With regard to the gases given off from the pitch coolers at times, but very rarely, some sulphurous gases are given off. The more common form of nuisance arises from naphthaline and naphthylamine and other carbon derivatives, which are really not gases at ordinary temperature. In this district these gases are treated in a similar manner to those evolved from the still worm end. There are at present eight works of this description in active operation. Experiments are being carried out to determine the temperature at which it is most suitable to "run" the pitch, but I am afraid, owing to the very variable quality of the tars dealt with, no very certain figure can be obtained.

Venetian Red Works.

There are three of these works in the district. During the past year one has been idle. The largest works, which caused considerable nuisance because all the SO_2, &c., was allowed to escape, has been much altered, and in future all these acid gases will be conducted to the vitriol plant. Of the other two, in one no copperas has been roasted, and in the other, as the acidity of the chimney gases has not been increased by the escaping SO_2, so as to exceed one grain per cubic foot, no action has been taken.

Zinc Works.

One large spelter works is in active operation in the district. It is situated in a wild bleak country side amongst the Cumberland fells. The fumes given off from the process are mostly oxide of zinc. Experiments are being tried in order to determine what is the best means of dealing with the nuisance. This will be reported on fully next year.

Barium Works.

There are two plants at work in the district. In both of them crude sulphate of baryta is the raw material. This is acted upon and converted into sulphide, and is then treated with acids in order to obtain the various compounds required. The sulphuretted hydrogen given off is in both works burnt in the sulphur burners attached to their respective vitriol plants by which all nuisance is avoided.

There has been no prosecution, for offences under the Act, undertaken in this district during the year.

Bernard E. Smith.

District No. 3.

Cheshire, North Wales, and part of Lancashire.

Annual Report for 1892.

Edward Geo. Ballard, Esq., *Inspector.*

The following is a list of the works registered during 1893. The number is somewhat increased, owing to the New Act of 1892 coming into force at the beginning of the year.

The works in Widnes and Runcorn Sub-District are not included.

14	alkali works.
4	sulphuric acid works.
8	chemical manure works.
6	gas liquor works.
3	nitric acid works.
25	sulphate of ammonia works.
23	salt works, belonging to the Salt Union, Limited.
14	„ „ independent owners.
1	cement work.
1	alkali waste work.
5	tar works.
2	Venetian red works.
1	zinc work.
107	

The number of different processes carried on at the above works, and which come under inspection, have also increased in number.

11	alkali manufacture.
3	wet copper extraction.
17	sulphuric acid manufacture.
12	chemical manure manufacture.
7	gas liquor processes.
4	nitric acid manufacture.
28	sulphate of ammonia manufacture.
9	bleaching powder manufacture.
7	chlorate of potash.
38	salt manufacture.
1	cement manufacture.
2	alkali waste process.
15	tar distilling.
2	Venetian red manufacture.
1	zinc smelting from ores.
157	

District No. 3—*continued.*

NUMBER of VISITS AND TESTS MADE DURING 1893.

	Visits.	Tests.
Alkali works	170	493
Sulphuric acid works (exclusive of alkali works, but including some manure works).	40	49
Chemical manure works (exclusive of those making sulphuric acid).	23	2
Gas liquor works	33	22
Nitric acid works	14	—
Sulphate of ammonia works	100	—
Salt works	56	167
Cement works	1	—
Alkali waste works	2	—
Tar works	23	—
Venetian red works	7	1
Zinc works	3	—
Total	472	734

The above tests include those made for total acidity, hydrochloric acid, and at exits of vitriol chambers.

IMPROVEMENTS EFFECTED DURING 1893.

Reg. No.	
804	Erected a new OV. chamber in order to obtain more chamber space.
764	New condensers and wash towers erected, Glover tower improved, and a large new Gay-Lussac tower built, and the works generally renovated.
786	Erected additional condenser.
762	All furnaces converted into "plus pressure."
805	Four OV. chambers rebuilt, Glover tower reconstructed, and a large new hydrochloric acid condenser for copper plant erected.
812	Improved water supply by sinking a new well; large quantities of water now obtainable for all purposes of condensation.
809	New manure mixer constructed and wash tower improved, &c.
865	Improved manure mixer.
741	Saturator renovated.

ALKALI WORKS.

These works continue to be carefully conducted, and with the exception of one or two occasions at No. 757, I have had but little cause to find fault. They are kept in a good state of repair, and in many instances much money has been spent in renovations and improvements.

District No. 3—*continued.*

One noteworthy feature of the year has been the registration of two new works on the old Leblanc and Weldon system, one of which is very extensive, and erected in a most substantial manner.

There have been no complaints of the escape of strong chlorine into the atmosphere from bleaching powder chambers during the year; these may now be considered well under control.

AVERAGES OF THE TESTS TAKEN AT THE ALKALI WORKS THROUGHOUT THE YEAR.

Register Number of Work.	Acid per Cubic Foot of Chimney Gases calculated as SO_3.	Hydrochloric Acid per Cubic Foot of Chimney Gas.	Hydrochloric Acid escaping compared with that produced.	Total Acid per Cubic Foot of Gases escaping from the Sulphuric Acid Chambers.
	Grains.	Grains.	Per Cent.	Grains.
757	0·75	0·07	0·42	0·81
758	0·79	0·07	0·65	1·71
762	0·54	0·05	1·13	0·64
764	0·41	0·05	1·04	1·13
786	0·72	0·05	0·39	0·79
796	1·18	0·12	0·93	0·84
798	0·70	0·07	—	0·43
804	0·39	0·03	—	1·35
805	0·55	0·04	1·59	0·50
807	0·40	0·04	1·93	1·51
834	0·66	0·10	0·63	0·58
865	0·59	0·09	—	0·75
Average	0·64	0·06	0·968	0·92

SULPHURIC ACID WORKS (exclusive of Alkali Works).

TABLE SHOWING AVERAGE ESCAPE DURING THE YEAR.

Register Number of Works.	Materials used.	O.V. Exit. Total Acidity as Grains SO_3 per Cub. Ft.	Method of dealing with Gases from the last Chamber.	Material manufactured.
765	Pyrites - -	0·58	Gay-Lussac and Glover towers	Sulphuric acid and manure.
780	Pyrites - -	1·25	Coke scrubber and steam jet -	Sulphuric acid and manure.
809	Pyrites - -	0·60	Gay-Lussac and Glover towers	Sulphuric acid and manure.
812	Pyrites - -	0·34	Gay-Lussac and Glover towers	Sulphuric acid and manure.
	Average -	0·69		

District No. 3—*continued.*

The chamber exit at No. 812 has been remarkably uniform and good, and the average for the year is a great deal better than that for 1892, which was 2·23 grains SO_3 per cubic feet. This is due to the improvements in the plant that have been effected since the works changed hands, and also, in no small degree, to the increased care and attention given to this department of the factory.

The average escape from all the sulphuric acid works in the district (excluding Widnes and Runcorn) = 0·82 grains SO_3 per cubic foot.

Chemical Manure Works.

With one exception, the works of this class have given no cause for complaint. I refer to No. 809, the same work I drew attention to in the report for 1892. The low level escapes, due to the bad relative positions of the mixer and dens, became so frequent and offensive that it was necessary to call upon the firm at once to reconstruct this portion of their plant. The result has been the erection of a new mixer at considerable expense, and placed directly over the dens. It was started satisfactorily in the autumn. Still, considerable carelessness was subsequently displayed with regard to the state of the manure gas wash-tower, so that on one occasion I had to report that the operation of mixing being carried on without water on the condenser, so as to cause considerable nuisance at a distance from the works. A prosecution followed, and a penalty of 20*l.* was inflicted.

Opportunities have not occurred to enable tests to be made of every wash-tower connected with manure mixers in the district, but some tests have been made, and they are given below.

Table showing Condensation effected by Manure Gas Wash-Towers.

Register Number.	Total Acidity as Grains SO_3 per Cubic Foot.			Method of conducting gases to Condenser.
	Average of Inlet to Condenser.	Average of Outlet from Condenser.	Average Per-centage escaping.	
765	6·00	0·15	2·50	Chimney draught.
803	43·20	0·80	1·83	Chimney draught.
809	8·96	0·37	4·43	Fan.
812	3·60	0·23	5·63	Chimney draught.
Average -	12·94	0·38	3·59	

Gas Liquor Works.

Four out of the six works registered under this heading are ammonia soda works. They have been carefully conducted.

Nitric Acid Works.

On the occasions of my visits to these works they have always been found in good order.

Sulphate of Ammonia Works.

All the works for the manufacture of sulphate of ammonia have been carried on in a satisfactory manner. At one of the works no sulphuretted hydrogen is evolved, the source of ammonia being bone liquor. There is but little change to report with respect to these works.

District No. 3—*continued.*

Of those registered under the Act:—

17 are working on the continuous system of distillation.
10 ,, ,, intermittent ,, ,,
17 absorb the sulphuretted hydrogen in oxide of iron.
9 burn it either under boiler fires or in retort flues.
1 converts it into sulphur in a Claus kiln.

The total quantity of sulphate of ammonia manufactured in the district (excluding Widnes and Runcorn sub-district) = 2900 tons.

Salt Works.

Works of this class are in good order, and numerous tests of the chimney gases have been made. Since the last report was issued, one new work has been added to the list. The averages of the tests made are given in the following table. It will be observed that they are well within the ·20 limit allowed by the Act.

Averages of Tests made at Chimneys of Salt Works.

Register Number of Work.	Total Acidity of Chimney Gases in Grains SO_3 per Cubic Foot.	Hydrochloric Acid per Cubic Foot of Chimney Gases.	Register Number of Work.	Total Acidity of Chimney Gases in Grains SO_3 per Cubic Foot.	Hydrochloric Acid per Cubic Foot of Chimney Gases.
	Grains.	Grains.		Grains.	Grains.
749	0·60	0·05	800	1·00	0·03
754	0·69	0·03	854	0·60	0·02
745	0·62	0·07	841	0·40	0·03
755	0·72	0·08	842	0·85	0·04
737	1·55	0·08	748	0·78	0·08
797	1·00	0·02	720	0·73	0·05
852	0·72	0·05	858	1·35	0·10
817	0·95	0·03	781	0·70	0·04
775	0·60	0·04	742	1·10	0·08
778	0·82	0·05	857	0·90	0·04
730	0·45	0·01	815	0·70	0·03
871	1·00	0·07	872	0·55	0·04
813	0·93	0·04	740	0·62	0·02
756	·71	0·05	823	1·02	0·04
770	·82	0·05	864	0·45	0·03
846	1·10	0·06	752	1·00	0·05
847	1·00	0·07	746	0·60	0·03
736	0·87	0·05	Average -	0·81	0·04

Cement Works.

There is but one in the district, and it has given rise to no nuisance. It is situated in the country.

District No. 3—*continued.*

Owing to the Alkali, &c. Works Amendment Act, 1892, coming into force this year, several new works and additional processes have been brought under inspection. They are as follows :—

ALKALI WASTE WORKS.

Only one work has been registered in the district under this heading, although two exist, the second being already covered by the certificate held by No. 786. They are works for the recovery of sulphur from alkali waste by the Chance-Claus process. They are carefully conducted.

TAR WORKS.

Of the 15 works in this class which have come under inspection in the district, five only have been registered as tar works ; the remaining ten are already covered by existing certificates issued under the old Act. Some are works where tar is distilled, and others are places where pitch and tar are heated for the manufacture of roofing felt, &c.

With respect to these works where they distil tar, there are two principal sources of nuisance, one from the sulphuretted hydrogen evolved with the gases at the end of the still worm, and the other from vapours given off on running hot pitch out of the stills into the open beds prepared to receive it, and where it is allowed to set before being broken up for the market.

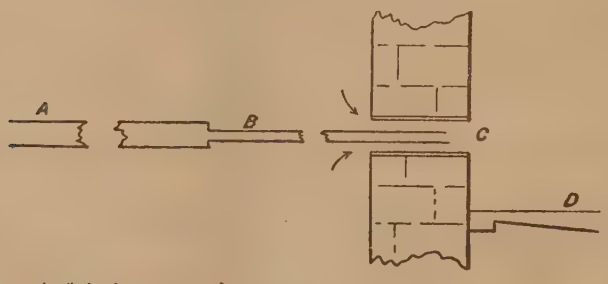
The latter nuisance is greatly mitigated by first of all running the contents of the still into a large enclosed iron vessel, boiler, or brick chamber, where it is allowed to cool somewhat before being run into the open beds afore-mentioned, and at all the principal works this is now done.

In a few smaller places, where they are not pushed for time, the cooling of the pitch is allowed to take place in the still itself; but this is only permissible, or even practicable, where they work off but one still occasionally.

Touching the sulphuretted hydrogen from the worm ends, some of the best methods adopted for dealing with this are shown in the following sketches and descriptions, which are given by way of examples of what is being done in this direction.

At No. 725.—The gases from the worm end, which is trapped, are led away by means of a 2-inch iron pipe about 14 feet in length. The pipe is then reduced to ¾-inch and continued for about 16 feet further, and is finally inserted in the side of the fireplace of the tar still, in such a manner as to leave a space around the pipe through which cold air rushes in, and in this way the end of the pipe is kept quite cool. Herein lies the secret of the success of this method, for if the pipe became heated there would be a liability of the gases "firing back" and causing an explosion.

The arrangement is shown in the following sketch :—

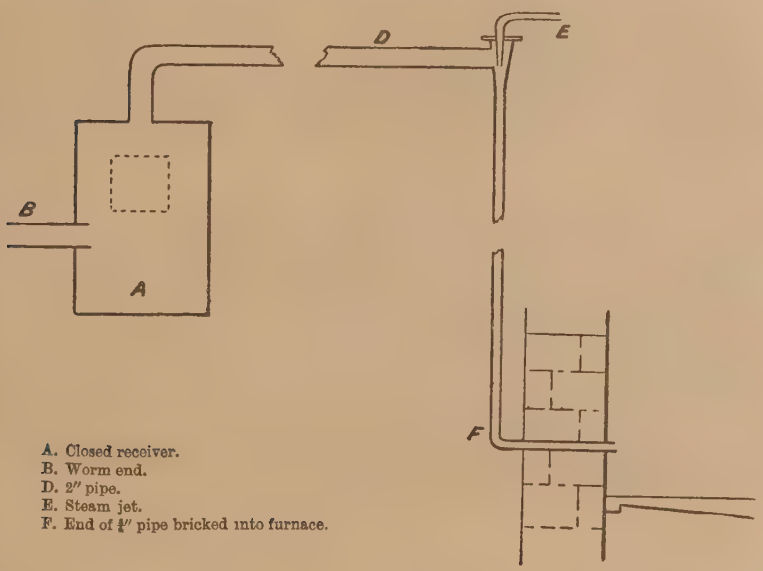


A 2″ pipe from worm end.
B ¾″ pipe.
C Space for admission of cold air round the end of the pipe.
D Fire bars and fireplace.

District No. 3—*continued.*

The gases may be seen burning at the end of the small pipe in tongue of flame about 12 ins. in length. I am informed that they never had any trouble from a tendency of the gases to fire back, whereas, at those works where the end of the pipe has been bricked into the side of the furnace, the burning of the gases at the end of the open pipe has been attended with danger.

At No. 888 the gases are also burnt, but the end of the small pipe is built into the side of the furnace, and in the first instance there was a tendency to "firing back." They therefore adopted the following plan, and it has proved very successful. Since it has been in use there has not been the slightest trouble or danger attached to the operation. The gases are brought from a closed receiver at the worm end (which is not trapped in this case) in a 2-inch pipe, similarly arranged as at No. 725 last described; but at the point where the pipe is reduced to ¾ inch a small steam jet is introduced, driving the gases forward. It is said that no flame will pass this. The arrangement is shown in following sketch.



A. Closed receiver.
B. Worm end.
D. 2" pipe.
E. Steam jet.
F. End of ¾" pipe bricked into furnace.

These two examples illustrate how the gases may be burnt with safety without the intervention of a water seal.

At No. 739 the gases are drawn off from a closed receiver at the worm end by a "Meldrum steam jet," passed through a water seal, and burnt under the still fires, which have closed ashpits. The arrangement answers well, and is perfectly safe.

Another method of dealing with the sulphuretted hydrogen from the still worm end, is by absorption in oxide of iron. This seems to be the favourite way with the larger works in the district. So anxious are they to avoid any risk of fire, that in some instances they have gone to much expense in order to adopt this method in preference to that of burning the gases.

The following example will serve to illustrate how this is accomplished at one of the largest works which come under my inspection, viz., No. 785. Here they have eight 5,000-gallon stills. The worm ends are all trapped, and from each trap a 3-inch pipe conducts the gases to a

District No. 3—*continued.*

6-inch main, running the whole length of the line of stills. One end of this main is brought down and dips into a barrel of water, the other end is connected with an oxide purifier about 10 feet square. A steam jet is also provided to assist the gases forward should occasion arise. The condensed steam from this jet runs into another barrel, as shown in the accompanying sketch. The bottom of the purifier is formed of a frame over which is placed coarse matting. A layer of about two feet of oxide is thrown upon this, and the whole is frequently turned over for revivification in situ.

Much the same arrangement is adopted at two other large works, except that, at one of them, the worm ends are not trapped, but the gases are drawn off from a closed receiver instead; and provided the lids are not left open by the workmen this answers well, for all the vapours and noxious gases thus pass to the purifier.

Venetian Red Works.

As regards these works, which have been recently brought under inspection, very little has been done so far. There are only two in the district, and they are small places. They have been awaiting the results of experiments which are being conducted elsewhere; but the proprietors are nevertheless desirous of conforming to the requirements of the Act as soon as a practical and efficient way of dealing with the acid gases evolved presents itself, and has been proved to be satisfactory.

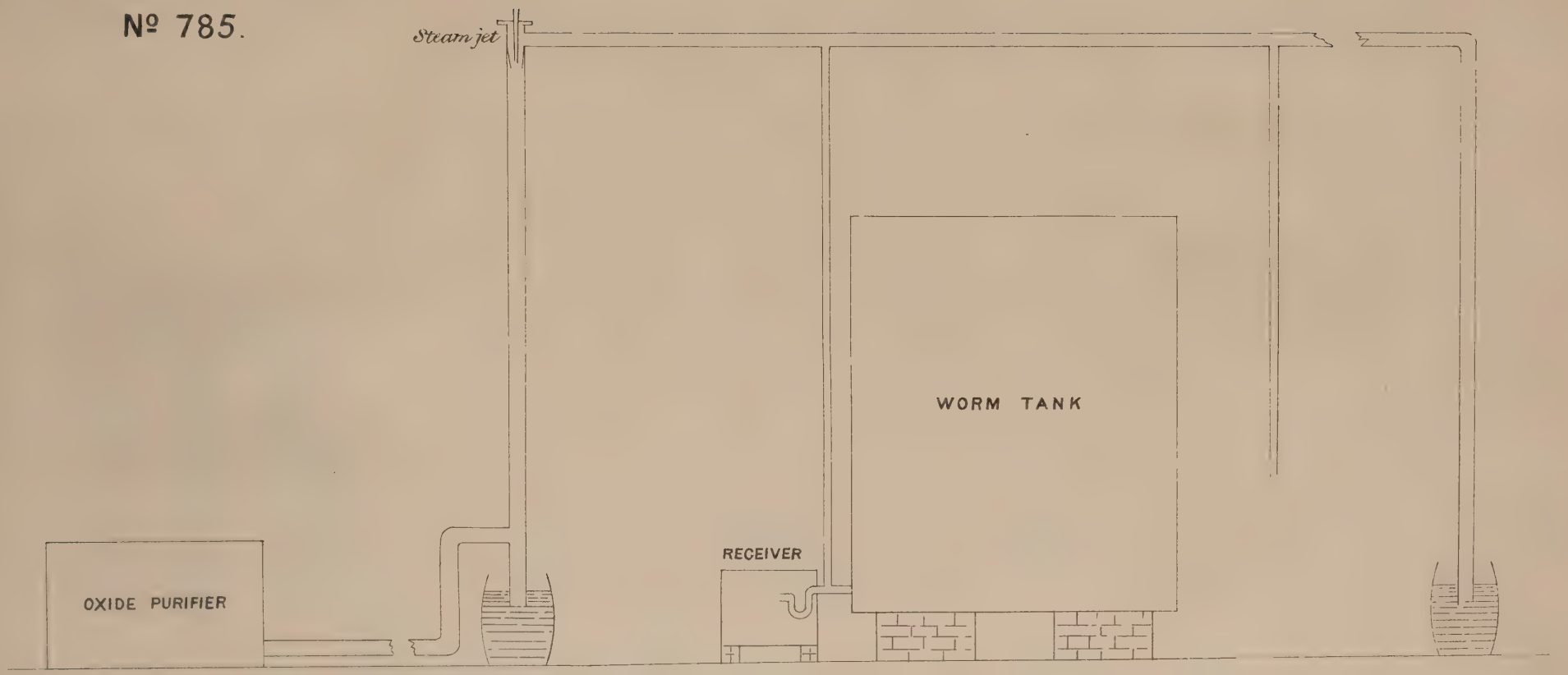
Zinc Works.

There is only one work in the district where zinc is extracted from the ore, and which therefore comes under the Act. The source of nuisance is twofold; first, that arising from the sulphurous acid evolved in the calcination of the blende preparatory to reduction, and secondly from metallic fumes escaping from the ends of the retorts in which the calcined zinc ore is reduced and the metal distilled. The nuisance arising from the calcination of the blende will shortly cease, as a neighbouring firm of chemical manufacturers are about to calcine all the blende for them, converting the sulphurous acid given off into vitriol, and returning the ore to the smelting works for reduction.

Experiments are being conducted in South Wales with a view to abating or collecting the zinc fume, and the proprietors are awaiting the results before adopting any method of their own.

Edward Geo. Ballard,
Inspector.

ARRANGEMENT FOR DEALING WITH
THE TAR STILL GASES AT
Nº 785.



Widnes Sub-District.

(Widnes and Runcorn.)

J. Affleck, Esq., M.A., D.Sc., Additional Inspector.

In 1893 there were 25 works in this district under inspection, registered under the following heads:—

Alkali (including copper extraction) by wet process	15
Sulphuric acid	2
Chemical manure	1
Sulphate and muriate of ammonia	3
Chlorine	1
Nitric acid	1
Cement	1
Alkali waste	1
Total	25

The "alkali" works are less by two than in 1892. One has been entirely closed, and another, having been dismantled as an "alkali" work, has been transferred to the head of "alkali waste," as the sulphur recovery process still continues in operation. As this work is still in the register as an alkali work the number stands as 15, and that of alkali waste as 1.

The only new work in this district brought under inspection by the amended Act of 1892 is one of the latter class; but several of the processes scheduled by the new Act are carried on in works already registered under other heads.

A work formerly producing muriate of ammonia has ceased to make it, and has been removed from the register.

Subjoined is a list of the different *processes* producing noxious gases, which were in operation during the past year in the works above enumerated, with the number of *plants* of each sort requiring inspection:—

Sulphuric acid	15
Alkali—salt cake	13
,, wet copper extraction	3
Chlorine—bleaching powder	11
,, chlorate of potash	2
,, chloride of sulphur	1
Alkali waste—sulphur recovery	7
Chemical manure	2
Sulphate of ammonia	3
Muriate of ammonia	1
Gas liquor	3
Nitric acid	1
Bi-sulphide of carbon	1
Cement	1
Smelting of lead deposit from vitriol chambers	1
Total	65

The plants employed in these different chemical processes were in fairly regular operation for the greater part of the year, until the great scarcity of fuel consequent upon the prolonged coal dispute throughout the Midlands paralysed every department of manufacturing industry in this district. Most of the works managed to continue their operations during

District No. 3—Widnes—*continued.*

August, but from September till the beginning or middle of December only a very few of them could be kept going, and that but partially. This stoppage of from three to four months explains the great falling off in the quantity of salt decomposed during the year.

By the end of the year all the works, save two, were again in operation, but most of them only to about half their capacity. The two referred to, which are still lying idle, are a Sulphuric Acid Work, No. 759, and a Copper Extracting Work, No. 835. The latter has now passed into the hands of the United Alkali Company, Limited, and will start work again soon under the name of the "Lancashire Metal Works."

No new chemical works of any sort have been begun in this district in 1893.

During the year over 500 visits in the aggregate were paid to the various works, and on most of these visits the usual chemical tests were employed to ascertain whether and to what extent the requirements of the Alkali Acts were being satisfied, and the escapes of noxious gases confined within the prescribed limits.

It is gratifying to be able to report as the general result of the year's inspection that there has been a still further improvement since last report in the condition of the majority of the works and in the extent and frequency of the nuisance caused by the chemical gases. In consequence of the great expenditure incurred in 1892 in the works of the United Alkali Company in renewing, extending, and perfecting their plant, especially those portions of it which deal with the noxious gases evolved in the different departments of the Leblanc process, fewer abnormal escapes above the Act limits were found during the past year, in testing the usual outlets by which the waste gases escape. Less noticeable also were those low level escapes which unfortunately take place from time to time from various parts of the plant, and which may be due either to imperfections or defects in construction for which no practicable remedy has yet been found, or to accidents, or (and most frequently) to carelessness on the part of the workmen.

In fact the year has been distinguished, even more than its predecessor, by the almost complete absence of any serious complaints of nuisance from the people of Widnes, or the residents in the surrounding districts.

I satisfied myself also by frequent personal observation that the *damage* done by the acid gases to the crops and hedgerows of the farms in the vicinity of Widnes was last year much less than I had noticed for some years previously.

It is true that in the last month of the year, in restarting the various processes after their lengthened stoppage in the autumn, a few exceptionally high escapes of gas, especially of the low-level class and from the Chance-Claus sulphur recovery process, were observed and gave rise to some complaints in the more immediate vicinity of the works; but as soon as these processes resumed their usual course of working these escapes disappeared, and by the end of the year there was no further cause for complaint in that direction.

There is not much change to report in the state of the alkali waste deposits around Widnes. But though they have not improved during the past 12 months to the extent that was anticipated in last report—for the reasons afterwards referred to—the escapes of sulphuretted hydrogen from them have not been so great as to be noticed at any great distance, or to give rise to any serious complaints. A part of the deposits west of the Central Station, where untreated waste is still being laid down, gave a good deal of trouble most of the year. The heating starting at the open face spread into the interior of the bank for some distance, and all the efforts made to smother it out by covering with "Chance" waste, lime, or other inert material proved only partially successful. The same thing occurred, though not to such an extent or so continuously, at the larger deposits towards the river near Ditton. It was due at both places in great measure to the smaller quantity of *untreated* waste now being sent out, compared with the length of the "tip" or open face of the bank. This

District No. 3—Widnes—*continued.*

not being covered with fresh layers as frequently as before, the heating which almost unavoidably develops here has more time to spread into the interior of the mass. This was especially the case during the long stoppage of most of the works in the latter part of the year, when only a very small quantity of waste was being made. It is very desirable on this account that any *untreated* waste sent out after this should be deposited in as confined a space as possible, so that fresh layers may be put on daily. Of course the great majority of the waste being now desulphurised by the "Chance" process requires no packing, and may be tipped down loose like ordinary rubbish without causing any nuisance. Though the United Alkali Company during the greater part of the past year have had plant sufficient to treat the whole of the waste they produce, for some reason or other they have not yet found it practicable to do so completely. The portion which they failed to treat, together with that produced by another large work, where there is no sulphur recovery plant, amounted to about 1,000 tons per week during the past year while all the works were going at their normal rate. It is rather disappointing to find that so much sulphur which might have been recovered by a process that has been working successfully for several years, and which has proved itself eminently practical, should still be thrown away to the loss of the manufacturer and the detriment of the public.

ALKALI AND SULPHURIC ACID WORKS.

Salt Cake and Sulphuric Acid Processes.—The consumption of salt in the Leblanc soda manufacture has been steadily diminishing in this district for some years past, not only because of the encroachments of the cheaper ammonia soda process, which is yearly extending its operations in Cheshire, as well as in our more recently developed salt fields, but also on account of increasing competition from other countries. The quantity converted into salt cake in 1893 has not been communicated, but apart from the usual yearly decrease which is now inevitable, the exceptionally unfavourable state of last year's trade and the long stoppage of most of the works must have very materially reduced the amount. Previous to this stoppage, however, work was going on regularly if not to the full extent in both of these departments.

All of the works were visited frequently during the year; most of them several times each month. On these visits one or more of the various processes scheduled in the Acts were examined to ascertain whether on the one hand the plant was being maintained in an efficient condition, and on the other, every care taken to prevent any undue escapes of the noxious gases. Numerous samples were also taken from time to time of the smoke and gases escaping from the various salt cake chimneys and vitriol chambers exists, and tested to see that the acids contained in them did not exceed in quantity the limits prescribed in the Acts. It is noteworthy that out of more than 1,000 samples of these gases tested during last year only *nine* were found exceeding the limits against 15 in the previous year. This fact alone proves not only the fitness and sufficiency of the apparatus in use in these fundamental branches of the Leblanc process, but the completeness of the control exercised over the enormous volumes of noxious gases to be dealt with, and the regularity with which the operations are conducted.

There is apparently no remission in the efforts which the directors of the United Alkali Company are making, by maintaining and increasing to the highest pitch the efficiency of the plant they have at work, by the most stringent and painstaking supervision, and by assiduous daily testing of the gases escaping in these departments of the process, to secure the very best results attainable in the manufacture. These efforts must necessarily have a very beneficial effect in reducing the escapes of these acid gases.

Though the renewals and extensions in the vitriol, salt cake, and bleaching powder departments of the works executed in 1892 were on a

District No. 3—Widnes—*continued.*

very extensive scale, it will be seen from the following list that a great deal more has been done in the same direction during the past year, for which the stoppage of work in the autumn months provided a very good opportunity:—

Reg. Nos. of Works.	Extensions and Renewals of Plant during 1893.
724	Two old bleaching powder chambers of iron replaced by two new ones of lead.
760	One vitriol chamber and one Gay-Lussac tower rebuilt.
763	One vitriol chamber rebuilt.
	A second large Gay-Lussac tower 50 ft. × 10 ft. square to act as second absorber in process of erection.
	Four bleaching powder chambers extended so as to give an additional 2,000 square ft. of flow space.
783	New vitriol rectifying plant capable of turning out 30 to 40 tons of pure O.V. per week added to the acid purifying plant erected the previous year.
801	Processes being totally stopped for four months; vitriol, salt cake, and bleaching powder plants were thoroughly overhauled and repaired.
	A very large new Gay-Lussac tower 50 ft. × 16 ft. square, built to act as a second absorber.
806	Two vitriol chambers rebuilt.
	Gay-Lussac tower recoked.
810	Two vitriol chambers rebuilt.
	Two Gay-Lussac towers recoked.
	Three Glover towers repacked.
	Two bleaching powder chambers renewed.
817	14 new pyrites burners built.
	30 old pyrites burners rebuilt.
	Hargreaves' salt-cake plant overhauled and thoroughly repaired and condenser recoked.
	Two new Weldon (chlorine) stills built.
	Three old Weldon stills rebuilt.
	New Weldon neutralizing well being constructed.
	Two new Weldon bleach chambers erected.
818	One new vitriol chamber built.
	Two new vitriol chambers and a new Glover tower in process of erection.
	Two new Weldon bleach chambers built.
	New neutralizing well for Weldon B. P. plant constructed.
	The whole of the vitriol, salt cake, copper extraction, and bleaching powder plants thoroughly overhauled and repaired.
833	Two vitriol chambers rebuilt.
	Three Glover towers repaired and repacked.
	One muriatic acid condenser repacked.
848	Two vitriol chambers rebuilt.
	One Glover tower rebuilt.
	One Guy-Lussac tower repacked with coke.
	One salt-cake furnace rebuilt.
	One muriatic acid condenser thoroughly repaired and repacked.
	Three new Weldon bleach chambers built.
850	30 pyrites burners rebuilt.
	One vitriol chamber rebuilt.
	One Glover tower rebuilt.
	Two new Weldon chlorine stills built.
	New chlorine gas mains put up.
	Three Weldon bleach chambers built.

District No. 3—Widnes—*continued.*

Of the gases which are constantly being discharged into the air from these processes, 1,040 samples were tested last year, 628 of these being taken from the salt-cake chimneys and 412 from the exits of the vitriol chambers.

The averages of these tests for each of the works are given in the following table, from which are derived those for the whole of the district. It will be seen that the latter compare favourably with the corresponding figures for 1892 given below :—

Alkali and Sulphuric Acid Works (Widnes and Runcorn), 1893.

Register Nos. of Works.	Chimney Gases.			Waste Gases of Vitriol Chambers.
	"Acidity" per Cubic Foot in terms of SO_3	Hydrochloric Acid.		"Acidity" per Cubic Foot in terms of SO_3
		Per Cubic Foot.	Per Cent. of total evolved.	
	Grains.	Grains.		Grains.
724	0·70	·085	1·26	—
	0·42	·064	—	—
759	—	—	—	2·20
760	0·73	·113	2·66	1·06
	0·69	·098	—	0·94
	0·50	·091	—	—
	0·44	·053	—	—
	0·42	·048	—	—
763	1·05	·105	2·57	1·46
	1·00	·113	—	—
772	0·42	·064	4·15	1·50
783	0·65	·060	0·84	1·15
	0·52	·063	—	—
801	0·51	·108	0·78	1·85
806	0·71	·093	1·39	1·55
	0·89	·076	—	1·53
	0·53	·082	—	—
810	0·64	·100	1·62	1·29
	0·63	·090	—	—
817	1·39	·094	2·06	0·88
	0·53	·102	—	—
818	0·54	·133	2·60	0·49
	0·41	·126	—	0·48
833	0·61	·055	1·20	1·68
	0·61	·054	—	1·54
	—	—	—	1·49
835	0·88	·147	—	—
844	—	—	—	0·98
848	1·35	·094	1·27	1·27
	0·56	·047	—	0·89
	0·86	·129	—	—
850	0·66	·126	2·69	1·31
	0·34	·099	—	—
880	—	—	—	1·54
Averages	0·67	·090	1·88	1·28
Do.—1892	0·68	·099	1·90	1·25

Of the 628 samples of chimney gases tested for HCl only *five* were found exceeding the Act limit of one-fifth of a grain per cubic foot of smoke, against *nine* out of 722 the previous year. The average of these

District No. 3—Widnes—*continued.*

excessive escapes of HCl in the chimney smoke was 0·316 grain, and the maximum 0·45 grain.

Of the 412 samples of waste gases passing away from the vitriol chambers into the air only *four* were found with a "total acidity" above the 4 grains SO_3 allowed by the Act, against *six* out of 497 the previous year. Of these the average was 8·35 grains and the maximum 14·3 grains. While these nine escapes of noxious gases above the Act limits that were detected throughout the year form such a small proportion (less than *one* per cent.) of the whole number of samples examined, they were also of an isolated character, only one of them occurring in each of nine different works. They were all corrected soon after being found out, and could not have occasioned any perceptible nuisance or damage. As they were evidently purely accidental, and not due to any careless or wilful evasion of the Act they were passed over without prosecution.

In 8 of the 17 works now carrying on these processes no excessive escapes of acid gases, either in chimneys or in exits of vitriol chambers, have been detected throughout the year.

Chlorine. Bleaching Powder.—There is little to be said regarding this branch of the Leblanc process. All the different sections of the plant in use for the production of bleaching powder have been kept in excellent working order, and many new stills and chambers have been erected to increase its efficiency. The residual chlorine of the chambers is easily kept below the 3-grain limit, and has never been complained of as causing any nuisance, even in the immediate vicinity of the works. In fact everything that was said in last year's report as to the complete absence of any complaints of this gas in Widnes and neighbourhood may be repeated as applying equally to 1893.

Every effort is still being put forth to improve the working both of the Weldon and of the Deacon processes, so as to extract from the salt or muriatic acid as much as possible of the chlorine in an available form.

No new chlorine processes have yet been started in the district.

One of the works (No. 870), the only one in the district registered under this head, has two small native manganese stills for generating the chlorine required for making chloride of sulphur, the manufacture of which is carried on intermittently and only on a small scale. Formerly a good deal of nuisance was caused from time to time at this work by the $MnCl_2$ liquors from these stills not being sufficiently neutralised before they found their way into the sewers, where they met with "waste" drainage and liberated sulphuretted hydrogen. But for some years past an efficient neutralizing well has been provided, where each charge of the acid manganese liquors is carefully neutralized with lime or "Chance" mud before it is run away. The process, so far as I am aware, no longer causes any nuisance either in this way or otherwise.

Another work in Widnes provided with a plant for making this substance obtains the chlorine required by means of a pipe from an an adjoining alkali work, so that it has no need to register under the Act, and is not subject to inspection.

Alkali Waste.—Sulphur Recovery.

The Chance-Claus process is still being successfully carried on in Widnes in seven works, six of which are registered as "alkali" works and one as "alkali waste" works under the new schedule.

In last year's report full particulars were given of the plant now erected for working the process in each of these works. Since then no change of any importance has been made, except the erection of an additional set of carbonators at one of the works. Unfortunately during the past year it was not found practicable to keep the whole of this plant in full operation (probably owing to some want of balance in its several parts) and several of the Claus kilns were standing idle most of the year. Hence the hopes entertained 12 months ago by the Directors of the United Alkali Company of being now in a position to treat the whole

District No. 3—Widnes—*continued.*

of the waste produced in their Widnes works have not yet been realised. With the plant all at full work, I have no doubt that this can be accomplished.

From returns supplied by the Company it appears that in 1893 about 200,000 tons of waste was turned out in their Widnes works, of which 144,000 tons, or 72 %, was treated by this process; and yielded 12,835 tons of pure sulphur, and about 1,000 tons sulphuric acid of 123° Twad., recovered from the waste gases of the Claus kilns.

The method of working the process remains much the same as when last noticed and commented on. All of the works still dispense with the use of meters and none of them discharge any of the so-called *inert* gases, contaminated more or less with HS, through oxide purifiers. The *whole* of the gases leaving the carbonators are taken either to the gas-holders or direct to the Claus kilns. The results are stated to be equally good whether gas-holders are employed or not.

The general substitution of rubber-faced *valves* for the numerous *taps* at first used on the carbonating apparatus, especially on the discharge pipes, has been making further progress during the year at several of the works; which tends to reduce the risk of the nuisance produced when any of the undecomposed sulph-hydrate liquor is allowed to mix with the super-carbonated slurry. This, and the possibility of unfinished batches of slurry (that is, batches still containing sulph-hydrate and evolving H_2S) being run off by a careless or unscrupulous workman unless the strictest supervision is maintained both by night and day, are now, apart from the serious escapes that might result from accidents to the plant, the chief sources from which there is a danger of nuisance to any extent from the process.

No means has yet been discovered for obviating or diminishing the great loss of sulphur that takes place in the waste gases of the Claus kilns, and little hope seems now to be entertained of ever being able to do so with profit. Of the total sulphur entering the kilns, 15 to 20 % is still lost in this way. At four of the plants *now* a part of the sulphur thus lost to the production is removed from the air by sending some of the waste gases through the pyrites burners into the vitriol chambers. What proportion of the gases is so treated cannot be accurately ascertained, but it is calculated that they produced last year the quantity of sulphuric acid stated above. The rest of these gases, after being burnt by passing through red-hot flues or specially constructed furnaces, and thus completely freed from H_2S, are allowed to escape by the chimneys.

There are nine chimneys in Widnes receiving gases of this sort, which are frequently tested to make sure that none of the H_2S has escaped oxydation. This gas can very seldom be detected in them, and then only in the minutest traces. Samples of the smoke are also tested from time to time for "Total Acidity," and 63 such samples were tested during the past year. The average "total acidity" of each of these nine chimneys for the year, calculated in grains SO_3 per cubic foot of smoke, was as follows:—

No. 747.		No. 763.	No. 768.	No. 806.	No. 810.	No. 833.	No. 848.	
I.	II.						I.	II.
0·80	0·65	1·85	2·45	2·70	1·10	0·70	1·95	1·58

The waste gases issuing from the Claus kilns of the different works have all practically the same composition, and if burnt with the same volume of air should all have practically the same acidity, namely that equivalent to the 15 or 20 grains of total sulphur per cubic foot which they contain. The considerable diversity observed in the average "total acidity" of the smoke of these chimneys is accounted for partly by the greater or less volume of air admitted into the furnaces or flues used for

District No. 3—Widnes—*continued.*

burning the gases, but chiefly by the greater or less preponderance of the smoke and other diluting gases passing up the chimneys. If these are partially or altogether withdrawn, the acidity may rise to a much higher figure than any of these. In fact, in one of the works, at the beginning of the year, while the caustic soda process was standing idle, I found on one occasion the acidity of the caustic soda chimney, receiving at the time the whole of these burnt gases from three Claus kilns, as high as 9 grains SO_3. This test, being one due to exceptional causes, is not included in the average. It is expected that it will be possible this year to take a larger quantity of these gases into the vitriol chambers, especially at No. 806, where the average acidity is the highest. Here none of the gases were taken to the chambers till near the end of the year. At No. 810, where a very long flue has been made for the purpose, two connexions have already been made to two sets of pyrites burners, and a third connexion is being made to take away a further quantity of the gas, possibly the whole of it. At No. 768 there are no vitriol chambers and the acidity of the chimney can only be reduced by further dilution, which would be beneficial.

Chemical Manure Works.

The two large plants in the district have been busy all year, and can now turn out together about 50,000 tons of artificial manures per annum.

There is no change to report in the method of working. The mixing plants, scrubbers, &c. have all been well maintained, are in an efficient condition, and have given rise to no avoidable nuisance.

At No. 810 the effluent water from the scrubbers has to be neutralized with lime before it is allowed to flow into the culvert which contains waste drainage.

At No. 844 much less air is drawn through the mixers, and therefore, though the exit gases leaving the scrubbers have a higher acidity than at No. 810, the total percentage condensation of the acid vapours is better.

Thirty tests of the "total acidity" of these gases were taken during the year, of which the following is the average for the two works:—

——	No. 810.	No. 844.
Gases leaving mixers. Acidity in grains SO_3 per cubic foot.	10·60	66·50
Gases leaving scrubbers. Acidity in grains SO_3 per cubic foot.	0·29	0·73
Percentage of acids escaping condensation - -	2·73	1·10

Sulphate and Muriate of Ammonia Works.

There are now three works and four plants for this branch of chemical industry in the district. One of the plants has lain idle all the past year, and the other three have produced of the two salts a quantity equivalent to 976 tons of ammonium sulphate.

The works have been maintained and conducted in a satisfactory manner, and no complaints have been made of them. The sulphuretted hydrogen, with which the escaping gases are more or less contaminated, continue to be treated as before; in one work absorbed in a *dry*, in the second in a *wet* oxide purifier, and in the third (the quantity of H_2S being inappreciable) burnt under the boiler fires.

District No. 3—Widnes—*continued.*

Nitric Acid Works.

There is only one small work of this class in the district, and it is hardly ever found in operation when visited. Last year only a few charges were worked in January, since which the plant has done nothing.

Cement Works.

The single work of this class located in the district has never been found emitting any noxious gases other than those accompanying coal smoke, and is therefore very seldom visited.

Lead Deposit Works.

The drying, calcining, and smelting of the lead deposit from vitriol chambers in Widnes is now confined to one work (No. 768) of the United Alkali Company, where the recovery of sulphur from alkali waste is the only other process carried on. Before it was scheduled in the Act of 1892, the white fumes which are given off so abundantly in the operation, consisting chiefly of sulphuric, sulphurous, and arsenious acids, were sent direct to the chimney and caused a great nuisance, much complained of in the vicinity of the works. Now the calcining furnace is connected with a high tower, packed with coke or flints, up which the fumes are conducted and well washed by a descending shower of water, which removes the greater part of the acids before going to the chimney. The "total acidity" of the smoke in this chimney, into which both drying and smelting furnaces draught, is less than 1 grain SO_3. The acid wash water is run away without coming in contact with any "waste" drainage.

J. Affleck.

Woolton, near Liverpool,
18th January 1894.

District No. 4.—East Lancashire and Yorkshire.

R. Forbes Carpenter, Esq., F.I.C., *Inspector.*

In this district there are now 186 registered works under inspection:—

	1893.	1892.
Alkali works - - - - -	31	32
Other scheduled works - - - -	155	121
Total - -	186	153

District No. 4—*continued.*

The number of separate processes under inspection is 308, having been reduced in September by 26 processes in 22 works, transferred to No. 2 District, as shown in the following table :—

	Total, 1893.	Transferred to No. 2 District.	Decr. 1893.	1892.
Alkali	13	—	13	13
Copper	2	—	2	2
Wool carbonising	6	—	6	7
Cylinder muriatic acid	11	—	11	11
Nitric acid	34	—	34	39
Sulphuric acid	40	2	38	41
Chemical manure	19	10	9	19
Gas liquor or liquor ammonia	20	—	20	20
Sulphate or muriate of ammonia	54	4	50	54
Chlorine	8	—	8	6
Cement	7	4	3	6
Sulphur recovery or alkali waste works	6	—	6	2
Bisulphide of carbon	2	—	2	—
Venetian red	2	2	—	—
Arsenious and arsenic acid	6	—	6	—
Nitrate and chloride of iron	41	—	41	—
Fibre separation	24	—	24	—
Tar	39	4	35	—
	334	26	—	—
Transferred to No. 2 District, deduct	26	—	—	—
Remaining 31st December 1893	308	—	308	219

The increase in the number of works, and still more in the number of processes under inspection, caused by the coming into operation of the extended Act of 1892 has been very great, and it has been impossible to cope with the new work in a satisfactory manner. In September a transfer of 22 works to the Newcastle District took place. They are those on the north and east of Leeds and north of the Humber, the character of which is seen by reference to the second column of the above table; the relief to me is very largely among the manure works, which are not, as a rule, in operation throughout the whole year. I cannot feel that it will be possible to maintain a proper supervision over the numerous new processes brought under inspection without further relief in the future, as it is most important that the standard maintained in the alkali and vitriol works should not be allowed in any way to fall below what has been reached by much labour through a series of years.

The greatest addition, it will be seen, has taken place in the last three items in the schedule. As regards nitrate and chloride of iron only seven are works absolutely new to me, three are works formerly registered, but having ceased to manufacture nitric acid, they dropped out of the schedule, though visited by me from time to time; the remaining 31, together with the five arsenic acid works, have already been under inspection and test; their consideration, therefore, in the pages of the report will be included in the space devoted to nitric acid works. As showing the indirect effects and benefit of the insistence on erection of condensing plant for recovery of nitrous and nitric acids in the works coming under inspection in 1882, I found on visiting the seven new nitrate of iron works that four had already efficient condensing plant in operation, having adopted it during the last few years from works already registered in their neighbourhood.

The next large addition to the wool carbonising works registered already as alkali works is the inclusion of all works using liquid muriatic acid as source of the muriatic acid gas required in the separation of cotton

District No. 4—*continued.*

and woollen fibre in rags. Twenty-four such are now registered, and there will be further additions as the returns of the local sanitary authorities have not been by any means complete. In visiting this class of work I had, in November and December, the assistance of Mr. Eustace M. Fletcher, by whom all the tests recorded under the heading of wool carbonising works have been made.

As regards the last item in the schedule, tar works: Of the 39 originally coming under inspection, before the transfer of four to the neighbouring district, 18 were entirely new works, the remaining 21 being works already under inspection as gas liquor works.

There have been a few registrations this year under the Act of 1882, but on the other hand a few of the old works have ceased to register, the balance not being materially altered.

In January and February a great many visits were paid to works wrongly supposed to be liable under the extended schedules. All these enquiries took a great deal of time, and in these months much time was devoted to the process of weeding out those works not liable. In all, 815 visits have been paid, and 684 tests made of the various exits and processes, of which Mr. E. M. Fletcher made 32 visits and 84 tests (exclusively in one class of works as explained above).

In 1894 it is to be hoped there will be more time to devote to the study of the new operations coming under inspection than has been possible in the year just closed.

Alkali Works.

Table showing the Amount of Acid Vapour escaping from Exits in Alkali Works, averages being given of all the tests made in the year:—

Register Number of Works.	HCl in One Cubic Foot of Chimney Gases.	Escape of Hydrochloric Acid per Cent. of that evolved.	Salt decomposed weekly in normal Work.	Total Acidity in One Cubic Foot of Chimney Gases in terms of SO^3.	Total Acids in One Cubic Foot of Exit Gases from Vitriol Chambers in terms of SO^3.
	Grains.	Per cent.	Tons.	Grains.	Grains.
1065	0·061	1·64	118	0·52	0·97
1068	0·058	1·53	54	0·25	1·09
1107	0·043	1·62	53	0·34	1·00
1111	0·078	2·07	149	0·60	0·91
1137	0·119	—	54	0·60	0·53
1144	0·031	—	59	—	1·23
1147	0·040	1·52	21	0·40	1·33
1150	0·062	0·50	107	0·70	{0·78 1·02
1156	0·111	1·44	49	0·62	—
1158	0·050	2·90	54	0·46	2·28
1162	0·047	1·69	45	0·37	1·14
1175	0·049	0·80	22	0·60	1·00
1190	0·063	—	27	0·20	0·94
1234	0·114	—	—	—	{1·08 1·29
Average 1893.	0·066	1·59	812	0·49	1·10
Average 1892.	0·065	1·59	812	0·51	1·16

District No. 4—*continued.*

Comparing the results of the two types of furnace by salt decomposed:

	1893.	1892.
	Tons.	Tons.
Salt decomposed in open furnaces, weekly - - -	373	392
„ „ close „ „ - -	439	420
Total - -	812	812
	Per cent.	Per cent.
Percentage escape of hydrochloric acid in open furnaces -	1·83	1·89
„ „ „ „ close „ -	1·33	1·28
„ „ „ „ all „ -	1·59	1·59

No change has taken place during the year in the number of works, but in the amount of salt decomposed there has been a material reduction through the difficulty in obtaining supplies both of salt and of coal and coke during the period of the great coal dispute. In some cases salt could not be obtained, in others, coal suitable for coking, or again, for giving the length of flame required in the plus-pressure salt-cake furnaces. The situation in November especially was one to tax the resources of the managers and proprietors of works to the uttermost, as the demand for muriatic acid especially was active owing to the trade of bleachers being good, and this acid is much preferred to vitriol as a "sour."

The total quantity of salt decomposed in alkali and copper works is 35,150 tons during the year. If 50 working weeks are taken as constituting the year the average weekly decomposition only amounts to 703 tons; had the last four months working been normal there would have been no material difference in the figures given for 1892.

The number of visits paid has been 162, and of tests made 342, of which 129 were for HCl in chimneys or flues, and of these six, or 4·6 per cent., occurring in five works, exceeded the Act limits as regards grainage. It should, however, be stated that two of these escapes had to be tested at the condenser exit, as there existed no chimney at the time to which the condensers could be draughted; had conditions in this respect been normal it is safe to say these infractions would not have been recorded; omitting them the record for the year is four infractions, or 3·1 per cent. of tests. Three of these were of short duration, being due to accidents happening at the time of my visit, and of which I was informed; the fourth, occurring at a copper work, had its source in change of character of ore used in the calcining department, and use of excess of salt.

Of 159 tests of vitriol exits in alkali works, three, or 1·9 per cent., occurring in three works, exceeded Act limits, a better result than has been attained in any previous year. As one of these tests, taken in connexion with the leaky condition of the principal chamber, indicated a very unsatisfactory position, the plant was at once stopped to isolate the leaky chamber, as its continuance in work could not be permitted, though efforts were being made to prepare for the change within a week. Since then the necessary renewals and re-connexion have been made.

With this, and one other exception plant has been maintained in good condition at all the works, there having been extensive rebuilding of

District No. 4—*continued.*

condensers, furnaces, and chambers during the year. In the only other case calling for warning, the renewals of cooling pipes were made at once instead of waiting for the local "feast" or holiday.

In the only work using the Chance-Claus process of dealing with the vat waste no local escape whatever of sulphuretted hydrogen from the apparatus has been noticed on the occasion of any visit. The flue from the special furnace erected to burn the residual gases from the Claus chamber has been tested on 12 occasions; on six of these H_2S was present in smaller or greater quantity owing to incompleteness of combustion. The maximum total acidity was 2·36, the minimum 1·35, and the average 1·77 grains SO_3 per cubic foot. The year's working shows that the furnace must be remodelled to meet the requirements of the Act for complete combustion even under unfavourable conditions as regards quality of fuel, and to allow more margin for efficiency if the fires cannot be cleaned and clinkered at exactly the proper time. This is a difficulty inseparable from a small plant.

In the only other sulphur recovery process used the liquor drainings from the waste heaps are decomposed in a closed vessel with waste vitriol recovered from rectifying operations; after settling, the liquors, clear and free from dissolved sulphuretted hydrogen, are run to the town sewer; for the sulphuretted hydrogen evolved in the decomposition provision is duly made for its combustion to sulphurous acid. The sulphur recovered in the process has no marketable value.

Chlorine.

The consideration of this subject may appropriately be included with that of alkali works as the two additional works registered this year are small in size, making chlorine exclusively for manufacture of chloride of sulphur, and the working of the process is so slow that it is very easy to make proper provision for prevention of escape of excess of chlorine. As I have stated in previous reports, the special demand for bleaching products in this district is in the form of "bleaching liquor," in the manufacture of which, if proper plant provision is made so as always to have an excess of absorbing surface, no difficulty is experienced in absorbing every trace of chlorine evolved from the Weldon mud stills. A plant is in course of erection, and all but complete, for the manufacture of bleaching liquor from the dilute chlorine evolved by the Deacon chlorine process. This will be a new adaptation in this district, Deacon's process being only used so far for the manufacture of bleaching powder, and its working will be watched with interest. As far as I can judge the plant for absorbing should be ample in its margin of efficiency.

At two works, however, a considerable amount of bleaching powder is made by the Weldon process, and the chambers are regularly tested before packing, and before turning, the figures being duly recorded in a book which will in future serve as the record for the factory inspector when the new Home Office regulations come into force. In both works the lime duster is used, the value of which is even more appreciated in shortening the interval before turning than before packing the finished bleach, in cases where chlorine has been supplied to the chamber too rapidly.

Register Number of Works.	Grains Chlorine per Cubic Foot of Chamber Gas.	
	Maximum.	Average.
1111	2·16	1·29
1150	2·18	1·32

District No. 4—*continued.*

HCl in Coal Smoke.

It would have been a great satisfaction to me to have been able to give some results of further experiments in different districts and with coals derived from different sources, but exigencies of the service have not allowed of any investigation such as I should desire. At the works of Messrs. Hunt Bros., Castleford, where, in 1892, the subject was most closely studied, I have not been able to get any further with the problem as to what reduction should be made in the percentage escape recorded in the third column of the table devoted to alkali works. It is clear (*vide* XXIX. Report, p. 75) that a material reduction should be made, but as Act limits have not, as at 1190, been in any way approached, the subject has had to stand over.

At No. 1190 I made one test of the HCl in the Durham coal that was in use during the coal dispute, taking advantage of the salt-cake plant being idle to disconnect the condenser exit pipe from the chimney; the result showed a total acidity as SO_3 of 0·20 grains only, and the HCl contents were only 0·026 grain. This coal could not have come from a district where the colliery waters contained magnesium chloride (*vide* XXIX. Report, p. 74). Since the resumption of the Yorkshire supplies, and use of coal known as Haigh Moor and Warren House, results similar in all respects to those above referred to, p. 75, XXIX. Report, have been obtained at this work, 0·08 to 0·11 grain HCl per cubic foot, being figures which alarmed the proprietors until the opportunity of the salt-cake plant being idle for repairs enable the true source to be discovered.

Sulphuric Acid Works.

Table showing the Total Acids in One Cubic Foot of Exit Gases from Vitriol Chambers in Terms of SO_3 (including those in Alkali Works).

Register Number of Works.	Average Grains SO_3.	Register Number of Works.	Average Grains SO_3.
1060	1·02	1140	2·18
1065	0·97	1143	1·15
1068	1·09	1144	1·23
1075	0·74	1147	1·33
1081	1·60	1150	0·78
1083	0·68	1150	1·02
1085	1·24	1158	2·28
1086	1·12	1162	1·14
1089	1·48	1163	1·36
1097	1·17	1164	1·52
1103	2·01	1165	0·92
1104	1·58	1166	1·60
1105	1·76	1167	1·92
1107	1·00	1172	1·10
1111	0·91	1175	1·00
1116	0·99	1190	0·94
1120	0·85	1198	1·25
1124	0·48	1234	1·08
1133	1·06	1234	1·29
1137	0·53		
Average 1893			1·21
Average 1892			1·12

District No. 4—*continued.*

In the 24 works other than alkali works making sulphuric acid, 205 tests of the chamber exits were made, of which eight, or 3·9 per cent. occurring in six works, exceeded Act limits. This is a considerable improvement over previous years, and it is to be hoped that the standard may be sustained and still further reductions be made in the future. At No. 1105 the addition of Glover and Gay-Lussac towers, now completed, will materially help the stability of the working, and this work was responsible for two of the high escapes recorded. At only two works was an escape directly traceable to the unfavourable working conditions of extreme temperature prevailing in the summer for so long a period, one of these being an alkali work. In this latter case the temperature of the gases at the far end of the first chamber in a series of two was 186° F., the kilns being underneath the chamber; the average of these two escapes was 5·50 grains, and reduction of pyrites burned was made to steady the working until the weather became cooler. Stopping and starting of chambers were responsible for the remaining infractions, which were all of short duration and do not call for detailed notice. Two vitriol and manure works were in September transferred to No. 2 District. Their averages, however, are included in the above list. Year by year the number of works not recovering the nitrous gases for return to the process becomes smaller (they are now reduced to four), and there are no works without a final tower for scrubbing out the residual mist of sulphuric acid, and which acts favourably in reducing local escape from the burners during violent winds. It is also noticeable that proprietors and managers are much more sensible than formerly of the loss attending the working of old leaky chambers; plant is maintained more continuously in a state of efficiency by not delaying or putting off repairs; no doubt the competition among makers has led to this, as it has also led to the extinction of the inefficient small works that were so great an anxiety to me in the six or seven years succeeding 1882.

Taking for comparison the year 1885, when I presented my first report of 12 months' work as inspector responsible for the district (Mr. G. E. Davis having resigned in July 1884), I find the following comparison between 1885 and 1893 as regards vitriol works:—

	1885.	1893.
Number of exits tested	44	39
Number of infractions of Act limits	35	11
Percentage of infractions on tests	10·3	3
Maximum number of infractions in one work during the year	6	2

These figures show conclusively the improvement effected; several of the works then making vitriol, small and badly equipped, no longer exist, having been replaced by works with modern plant and appliances; but in many other cases the improvement has been continuous and steady, *e.g.*, the work responsible for the greatest number of infractions in 1885 has only had one during the last three years, and that at the starting of the plant.

Mention may be made of the instability in equilibrium of chamber working caused when, through rapid demands by consumers, the stock of acid in the chamber is drawn down to a minimum. Although at this time there is more chamber space per pound sulphur burned, the variations in chamber working are unaccountably rapid, and cause extreme vigilance to be necessary. This has been accounted for by some chemists as "the influence of mass upon production," but I am decidedly of opinion that the formation of nitrosyl sulphuric acid and the storage of this in solution in the acid in the bottom of the chamber is a very important factor, that results in a balancing action by interchange of nitre compounds between the liquid and gaseous contents of the chambers; with a larger

District No. 4—*continued.*

stock of liquid acid there is more opportunity for the operation of this balancing interchange than when the stock is reduced to the very minimum necessary to lute the gases in the chamber.

A curious incidental confirmation of the correctness of this theory has come under my notice during the last two years. At one works the fresh nitre supply to the chamber process to replace loss is almost entirely derived from denitration in the Glover tower of "recovered acids" containing organic azo-compounds in small percentage, sufficient, however, in their cumulative effect to form as a film on the surface of the acid in the chambers, and physically to separate the latter from the gases above them, and effectually to prevent the interchange I have spoken of above. Under these conditions, whatever the stock of acid in the chamber, the working has the same characteristic of instability which is a feature of there being little or no working stock of acid. From time to time the nitro-toluol is siphoned off, the chamber process being stopped for the purpose, and the use of a working excess of nitrous compounds tends, so far, to neutralise the instability of equilibrium in the chamber process itself.

No opportunity has occurred at any works to put to the test of experience the proposal of Professor Lunge to shorten the length of the working chambers by one half, to about 60 feet, and interpose between the chambers one or more, according to the number of chambers in a series, of his plate columns. Professor Lunge's theory that the latter half of any chamber does very little work in acid making, a theory based exclusively on analysis of the gaseous contents of the chamber tested at many points, is not confirmed by the careful record of drips kept at several works, where quantities and strengths are carefully measured at stated intervals, and where there are, perhaps, three drips (more generally two) in the length of the chambers. It is hardly necessary to state that anything that would tend to lessen the area of the lead chamber, lessens the amount of escape of acid gases from leaky and defective burning, and wear of lead in unfavourable position such as the crown tree, so that further experiments with Professor Lunge's plate columns or Hacker and Gilchrist's "battery condenser" columns will be carefully watched, and results noted.

TABLE showing the AMOUNT of ACIDITY in terms of SO_3 escaping from the CONDENSERS OF RECTIFYING APPARATUS.

Register Number of Works.	Number of Tests made.	Grains SO_3 per Cubic Foot.
1085	1	1·12
1120	2	0·52
1133	3	2·36
1137	1	1·50
1147	2	2·43
1158	1	1·57
1175	6	2·06
1187	1	1·72
1198	11	*a* 2·62 *b* 1·71
Av. 1893 -	28	1·76
Av. 1892 -	15	1·71

The majority of these tests were made from condensers attached to continuous processes, the average of five tests taken of the ordinary discontinuous process (1·88 grains SO_3) being slightly higher than that of

District No. 4—*continued.*

the whole, but, of course, it must be remembered that the tests from the continuous processes represent an average escape, while those from the older plants only represent the loss on finishing.

Two infractions of Act limits occurred in works 1175 and 1198, both in continuous processes. In the first instance the escape was due to insufficient condenser space; this defect has been since made good. The second case was an example of what may occur by forcing a continuous plant to such a heat that dissociation of SO_3 develops an important loss. On this occasion 7·5 grains SO_3 were escaping per cubic foot from the condenser, the acid in the middle glass of the series showing a temperature 20° C. above the normal working point. As I have mentioned in previous reports, when once SO_3 is formed it does not at all readily re-unite with water, so that the strength of the acid running from the condenser is no guide to the loss taking place.

The progress of the Webb-Levinstein processes for rectifying in glass or porcelain beakers has been watched during the year, but vitriol makers who have to meet their customers' requirements of brightness and clearness with absence of any colour, and at the same time, freedom from nitre compounds, hesitate to embark on processes where the products of fuel combustion have possible access to the surface of the acid. Moreover, the belief exists that clear acid can only be got by vigorous boiling in the glasses, and that a simmering rectification will not give continuously a clear bright acid, while to boil vigorously would be attended with increased danger of breakage. For "recovered acids," these processes seem excellently suited, as the wear and tear on the lead pans and their covers, which is extremely heavy, is entirely avoided. The local escape of nitrous compound that is liable to occur from badly covered concentrating pans for recovered acid is well known, and has always been a source of anxiety to the manufacturers as well as to myself. No example of the completion of rectifying in a lead pan exists any longer in the district, but this used to be done in former years with brimstone acid, and is a good example of what can be done with lead by carefully making the rectifying process a simmering, though, of course, a very slow one. A plant of continuous type with retorts and cooling vessels made of enamelled cast iron is all but ready for trial at the close of the year; the experiments are said to have justified the erection of a considerable plant.

Chemical Manure Works.

Table showing the Amount of Acidity, in terms of SO_3, escaping from the Condensers of Manure Works.

Register Number of Works.	Total Acids in One Cubic Foot of Gases in Terms of SO_3.		Per-centage of Acid condensed compared with that evolved.
	Exit of Mixer and Den.	Exit of Condenser.	
	Grains.	Grains.	
1086	—	Traces.	—
1126	1·20	0·165	86·3
1140	4·65	0·092	98·
1172	1·80	0·55	97·
Average -	2·55	0·104	96·
Average 1892 -	6·95	0·190	97·3

District No. 4—*continued.*

Ten of the 19 manure works were transferred to No. 2 District in September, and these comprised two works making their own acid, one being of considerable importance. No new work has registered, and the plant in all has been maintained in efficiency. There is always ample time in the summer months, between the closing of one season and preparing to manufacture for the next, in which to overhaul all plant and make the necessary renewals; and I have never found any lack of willingness on the part of proprietors to do this thoroughly, as the men work with far greater efficiency when the apparatus for taking the acid gases away from them is kept in good working order and repair. At the same time the tests show a good percentage condensation, the figure, however, to watch is that in the third column—Exit of Condenser.

The destructor furnaces in connexion with the conversion of excreta into manure in the two Corporation works, Nos. 1,153 and 1,197, have been watched, as in former years. In the latter work the improvement reached last year has been more than maintained, no local escape or "fogging" whatever from the concentrators having been noticeable. In the former, which was the first to show the way to success, I have had to give serious warning of the necessity of being more vigilant in maintaining the destructor always at a red heat, else the nauseous gases are not destroyed. More attention is being paid to economise the draught and to reduce the volume of foul gases to be dealt with, and so far results promise favourably.

The amount of excreta manufactured into finished manure at one of these works, that belonging to the Rochdale Corporation, has increased from 421 tons in 1883 to 672 tons in 1893, the tonnage of excreta collected in pails and delivered at the works increasing from 8,187 tons to 9,689 tons in the same period. As 8 per cent. of ammonia is guaranteed and is readily obtained without fortifying by addition of blood, &c., the manure finds a good sale, the receipts having increased from 3,344*l.* in 1883 to 5,251*l.* in 1893 (the sales in the last year included previous stock). For 1894 contracts have been made in advance for half the make, and the manager is certain the other half will be more than applied for by other old customers. During 1893 improvements were made in the manufacture, by which the whole of the waste water that formerly went to pollute the River Roach was suppressed, and a certain proportion of the manure can, by the improved process, be got up to a percentage of 13% NH^3. The heat required for the concentration is almost entirely derived from the combustion of ashes, the number of loads brought to the works increasing from 10,384 in 1883 to 15,885 in 1893. To deal with the gases resulting from the combustion of this large quantity, as well as with those evolved in the concentration of the manure effected by this combustion, the cremator furnace uses over 30 tons of gas coke weekly to resolve all the noxious and offensive vapours into carbonic acid and water.

At the other works, that of the Manchester Corporation, the policy has been rather to look for increase in the number of tons of manure manufactured than to improvement in its quality; 3 per cent. of ammonia is all that is obtained, and a further enrichment to 3·5 per cent. is obtained by the addition of blood or fish guano. Only a portion of the town excreta is thus dealt with, and enough ashes and refuse are brought to the Holt Town works not only to raise steam for the concentration of the manure, but also to maintain the two cremator furnaces at a bright red heat, sufficient to cremate all noxious vapours. Formerly creosote oil was used for this purpose, but, by being careful to use nothing but dry refuse, very regular and excellent heat is maintained in the long cremator chambers.

Gas Liquor Works.

Only one new work has been registered during the year, and four have been transferred to No. 2 District. The total quantity of gas liquor worked up into sulphate and muriate of ammonia, as well as into liquor ammonia,

District No. 4—*continued.*

crude, refined, and anhydrous, is equivalent to 24,320 tons of sulphate. This figure shows a reduction of 405 tons below that of 1892, but is more than accounted for by deficieney of make at two works. At one of the gas-works of the Bradford Corporation an explosion took place at the close of 1892, which wrecked part of the condenser and scrubber plant; until this could be reinstated, considerable loss of ammonia resulted, as the busy season of the year in gas making was then at its height. In one of the works carbonising coal for recovery of benzol operations were suspended from the end of May till after the close of the coal dispute. Had these two figures been normal, a slight increase in the make would have again shown itself, as in former years.

To show comparative results with those of last year, I append the following table:—

		1893.	1892.
Total quantity of liquor distilled equivalent to sulphate - - - - - tons		24,320	24,725
Proportion per cent. distilled to liquor ammonia -		15·5	15·
Proportion per cent. sulphate and muriate made by continuous processes - - -		94·6	91·1
Proportion per cent. liquor ammonia made by continuous processes - - - - - -		79·5	74·6
Method of dealing with foul gases evolved in manufacture of sulphate and muriate -	To vitriol chambers, per cent.	32·1	33·
	By Claus process „ -	12·5	9·7
	Absorb in oxide of iron or lime, per cent. - -	47·7	52·3
	Other methods, per cent. -	7·7	5·

The table shows that continuous processes of distillation increase in favour year by year, and that the demand for strong crude liquor ammonia for use in the ammonia-soda process does not tend to lessen but somewhat to increase. The Claus process has received further extension by its adoption at one more work. For plants making from 400 tons sulphate *per annum* (and upwards) it works with regularity, and gives satisfaction in the way of minimising nuisance. It is in works of this size that the cost of labour in charging and renewing the oxide in the purifiers becomes a not insignificant charge per ton of sulphate, and that, occasionally, motives of economy in the minds of the managers of works (usually gas-works), have to be kept in check by insistence on the part of the inspector that the object to be attained is freedom from nuisance, and the having a necessary reserve of purifying space to meet variations in the quality and quantity of liquor used that are sure to occur in practice through a winter's working. Purifiers at such times require to be quickly emptied and refilled for use, and I have seen how there is a certain risk in sending men to empty a box recently isolated where the depth exceeds 3 feet (the depth being sometimes 6 feet), of their being overcome by the disengaged gases mechanically held by the oxide, as soon as they get to the lower layers, and their heads get near the level of the edge of the purifier. I have recommended strongly that provision be made for the previous aeration of the purifier by blowing air mixed with steam to prevent

District No. 4—*continued.*

undue heating, as by a Körting jet, for some two hours before the men are sent to empty the box; another plan where chimney draught is already used for revivification of the oxide in situ, is to have this connexion put into use for the same period, and kept on while the men are at work; this draws any gases downwards away from the men, and there is no risk of their becoming insensible in a deep purifier, or even of their eyes being affected. Both plans are effective, and are an important adjunct where the purifiers are hard pressed. Revivification of oxide in situ by chimney draught downwards is practised at several works, the limit is the back pressure caused by caking of the oxide on the grids and for some 9 to 12 inches above; at only one works is air driven upward by a fan, and this is used not only when the distillation plant is idle, but when it is at work, and with very successful results as far as prolonging the life of the oxide.

Nitric Acid Works.

Table showing the Amount of Acid escaping from Condensers for re-oxidising Nitrogen Oxides to Nitrous and Nitric Acids.

Register Number of Works.	Number of Tests made.	Total Acids in One Cubic Foot of Exit Gases in Terms of SO^3.
		Grains.
1072	1	3·40
1077	5	0·55
1147	10	(*a*) 0·90 (*b*) 1·20
1151	1	0·34
1198	3	0·72
Av. -	20	1·20
Av. 1892 -	25	1·51

Included in the above table are tests from the exits of condensers, not only of nitric acid works, but of nitrate of iron and arsenic acid works. There have been erected during the year two of the Lunge-Rohrmann plate columns, which certainly yield in the smallest possible space a recovered acid of a strength I have never yet seen attained in the most scientifically worked recovery plant, where three coke columns are used in series, 70° T. being reached. At this strength the condensation is not complete, and needs the supplement of a second column worked at a weaker strength, but at the above-named strength the acid is obtained free from chlorine. There is not any great step in advance to record this year in connexion with these works, but I have had no serious complaints to make; a condensing plant with fewer joints and liability to leakage from local pressure at certain stages in the distillation is much to be desired, perhaps if the difficulties attendant on making the distillation a continuous one in large works can be overcome, this object

District No. 4—*continued.*

and saving of loss and nuisance will also be met. Experiments in minimising the formation of nitrous acid in the stills have been made at one work, and so far promise well.

Wool Carbonising or Fibre Separation Works.

In the course of the inspection of this class of works during the year, only one modification of and addition to the processes already described in previous reports has been found in operation.

The works naturally separate themselves into two classes. In the first and oldest, the rags are suspended in chambers built of brick tarred inside and out, and heated below by a stove. Muriatic acid gas in proportion to the cotton to be destroyed in the rags is turned into the closed chamber, and the action is allowed to continue through the night; in the morning the chambers are draughted to the condenser before opening by chimney suction, the fresh air admitted at an opening in the door sweeping the surplus acid gases before it. These works have for many years been under inspection, and are provided with condensers. Appended are the tests made.

Register Number of Work.	Acidity of Surplus Gases.		Grains HCl per Cubic Foot in Gases leaving Condenser.
	Total Acidity as SO_3 of Gases in Chamber.	Grains HCl per Cubic Foot of Gases in Chamber.	
1203	2·80	2·27	0·034
1204	1·88	1·63	0·045
1217	2·25	1·68	0·050

The amount of ground space required for the plant and the slowness of the operation, together with the extra labour required for placing the rags in position in the chamber, led to the introduction of revolving machines of rectangular section, placed in a heated stove, the muriatic acid gas being introduced at the axis of the machine. Great economies of space, time, and labour were attained, but the process is not suitable for every description of rags, the old method finding favour where the least amount of "tendering" and loss of colour are essential, and outweigh the above-named advantages. Another step forward, in some respects, has been to make the operation a continuous one; this can only be carried out where the rags to be treated are uniform in quality, as the time element in the operation is made a fixed quantity; if the rags are not finished, they would have to be put through the machine a second time. As a consequence, the continuous type of machine can have but a limited application. As an excess of muriatic acid gas must be used, the necessity of a condenser to deal with the surplus gas is quite essential. The only test in the table below of a condenser exit refers to a work of this class. In the table tests are shown of different types of machine dealing with the different varieties and qualities of rags. Sometimes the quantity of cotton to be destroyed only consists of sewing thread, in other cases of the whole warp, the results, therefore, are very divergent, but show the necessity of provision for condensers for the surplus gases.

District No. 4—*continued.*

Register Number of Works.	Acidity of Gases escaping into the Air from Machine Outlet.		Gases leaving Condenser Grains HCl per Cubic Foot.
	Total Acidity as SO_3 Grains per Cubic Foot.	HCl in Gases. Grains per Cubic Foot.	
1067	1·20	1·140	—
1084	0·47	0·306	—
1100	0·90	0·600	—
1115	0·50	0·310	0·160
1128	0·42	0·235	—
1179	0·25	0·190	—
1183	0·38	0·200	—
1194	0·12	0·060	—
1207	0·33	0·200	—
1217	0·20	0·105	—
1224	Exceeds 5·	Exceeds 1·	—
1232	0·10	Trace.	—
1239	1·20	0·600	—
1241	0·10	0·020	—
1249	0·54	0·380	—
1257	0·26	0·045	—
Average -	0·75	0·337	0·160

Manufacturers have been all of them informed of the duties laid upon them by the Alkali Acts, and while response on the part of a few has been prompt and willing, I have met with a great deal of opposition and passive resistance, arising from the profound ignorance of even elementary chemical facts and laws prevailing among the majority of those engaged in the particular branch of the woollen industry.

More progress will be made in 1894, but already I can report the erection of five condensers in works formerly without any provision of the kind; unfortunately these are not all of them adequate in sectional area to give the draught necessary to prevent local escape on emptying the machines.

It only remains to notice a proposal carried out in one new plant by the patentee of the first form of carbonising machine, which at present is experimental only, but is the first departure from usual lines to meet the question of nuisance of escape of gaseous HCl, and at the same time bring it into use in place of washing it away by a condenser, where the only use for weak acid of 15° T., would be for "stripping" purposes in a dye works. The surplus gases from this machine, together with the fuel gases from the stove, fired for this purpose with coke, are drawn by a fan and driven through a second machine similar in general construction to the first, filled with fresh moist rags to be dried and subsequently carbonised. The second machine acts as a dry condenser, the HCl is kept gaseous by the hot stove gases, and performs its function of partly carbonising the rags in the machine. When these are put into No. 1 machine, the process is completed with much greater rapidity, and a saving of 20 per cent. muriatic acid is claimed. A departure of this kind is to be welcomed, even if not at present successful. I was seriously told that the claim for the machine was, that by mixing the surplus muriatic acid gas with the stove gases the former *was destroyed*, it not being apparent to the inventor that its absorption in the supplementary machine was the *raison d'être* of the whole apparatus as regards claim for saving in acid used per cent. of rags.

District No. 4—*continued.*

Cement Works.

There has been one addition of a small work this year, and by the transference to No. 2 District of the works at Hull, the most important works disappear from the register of the district. In no case has complaint been received, and the character of the materials used differ entirely from that of the Thames and Medway works, no white fume being noticeable in burning.

Sulphur Recovery or Alkali Waste Works.

The only two processes coming under this heading have been already under inspection since their inception, and are mentioned in the portion of the report devoted to alkali works.

The problem of what is to be done with old deposits of alkali waste on land where alkali works are no longer in operation, will come up for further consideration in the future. I know of one deposit, at least 50 years old, none having been added during that period, the drainage from which is an annoyance to a bleacher at Bolton requiring great purity in his water.

I am in communication with the Chief Inspector of the Mersey and Irwell Joint Committee as to other waste heaps in the district and the drainage therefrom.

Bisulphide of Carbon Works.

Two new works are registered under this heading. In one the operations are conducted on a very small scale, and produce is shrinking, owing to the change that has come upon the waterproofing trade, through the introduction of the dry-heat process of vulcanisation. In the other work, operations are carried on on a decidedly large scale, the plant has been designed with considerable skill, and provisions made for prevention of escape of bisulphide vapour, as also of sulphuretted hydrogen; whether, however, these provisions are altogether adequate is a matter for future study and test.

Venetian Red Works.

Both the works registered under this heading are situated in the portion of this district included since September in No. 2 District. In the spring I devoted some time to the study of operations in one of these works, and to consultations with the proprietors of the other and larger works, as to the best means of condensing the mixed sulphurous and sulphuric acids evolved during the process of roasting.

At the smaller work I was surprised at the low acidity of the chimney to which all the kilns were draughted, and to check the results as far as practicable, I estimated the speed of the chimney, and ascertained the volume of gases passing, knowing at the same time the weight of charges in the furnace of Venetian and Indian reds, and, aided by the experience of the chemist in charge of the operations, I was able to arrive at a very definite conclusion, that with the scale of operations then going on, the acidity of the chimney gases would rarely exceed 1 grain SO_3 per cubic foot.

	Grains SO_3 per Cubic Foot.
Maximum acidity in chimney gases	1·05
Average (5 tests) „ „	0·88
Total acidity of boiler fire gases only	0·25
Lbs. SO_3 per hour in chimney at 1 grain SO_3 per cubic foot	102·3
Lbs. SO_3 free to come from furnace in 12 hours	543·0

District No. 4—*continued.*

One third of the total acid comes off during two hours, the remainder is spread over nine to ten hours; the former is called the "sulphuring" stage.

Arsenic Works.

The consideration of works converting arsenious to arsenic acid has already been made under the head of Nitric Acid Works; one work there is in addition, recovering arsenious acid from magenta residues; but it has not been in operation since April, no test, therefore, has been possible. The plant and condensing apparatus are well designed.

Tar Works.

The inspection of this class of work forms the most important addition to my duties under the amended and extended Act of 1892. Until four of the works were transferred to No. 2 District in September, there were 38 works in which tar distillation was carried on. In several instances, it is true, the works are small and unimportant, having only a single 3-ton or 5-ton still; but in many cases, on the other hand, operations are conducted on a very large scale, as might be expected when the populous character of the district is considered, the make of sulphate of ammonia from gas works, an indication of relative amount of coal carbonised, being exceeded only in No. 7 District, which includes London.

It is a satisfaction to be able to report that in one work, already well known to me as registered for distillation of gas liquors, every possible provision had already been made for preventing the escape of gas, both from the worm ends of the tar stills, and from the pitch coolers, this work being a model of its class, and I am greatly indebted to the proprietor for the liberal and hearty assent he has given to my request for permission to communicate to others less forward than himself the detail of the methods he adopts. Taking the two counties in which these works occur, Yorkshire was very much in advance of Lancashire, the large works in the former county being much more modern in type.

The tendency, much to be praised, has been to arrive at a size of still that can be worked off in the day of 11 to 12 hours, leaving only a watchman at night to make the preparations for morning; the relief to those responsible, of knowing operations are concluded before they leave, in a business where the risk of fire must be an ever present one, is a great gain.

Some tar distillers prefer to finish the worm end with a swan neck; in this case there must be two pipes leading to the foul main, one from the still side of the swan neck, the other from the distillate receiving box, whereas, as regards dealing with the foul gases from the still and the receivers, the latter alone is necessary. In any case where a number of stills are in operation, and connected to one foul gas main, physical separation of every particular still for cleaning should be provided for; a blank flange at a flange joint being, in my opinion, preferable on the score of safety to a plug tap, this to avoid any risk of foul gas coming into the empty still by possible stoppage of the exhaust jet or pump.

There are two stages at which the evolution of foul gas is noticeable, at the beginning of the distillation when the water charged with sulphide of ammonium is coming off, and at the close, at the breaking up of the thio-organic compounds when anthracene is coming over. The decomposition in the latter stage appears to go on beyond the worm itself; in the receivers, during cooling, much sulphuretted hydrogen is evolved, hence the need of having these receivers also under suction.

The best plan is to collect all these gases, sucking or blowing them through a seal near the worm ends, and taking the gases, if dealt with as usual by combustion, to blow through a second seal close to the boiler fires; in the first seal, and again in the pipes connecting them to the

District No. 4—*continued.*

second, there is opportunity for recovery of light oils, if the worms and condensers are small and hardly pressed.

A junction with the pitch receiver by a pipe of the same dimensions as the foul main is desirable, provided, of course, with a tap at the junction, to be closed when draught is not needed; the benefit of this is to use suction on the pitch receiver when pitch is run into this from the still; it is not needed to the same extent when pitch is softened by hot creosote oil in the still itself, but still is desirable. Suction should be kept on for several hours, and results in the recovery of much creosote oil, besides providing a considerable amount of permanent gas as fuel for the boiler. The amount of this has surprised those tar distillers who previously let all this escape into the air. The pitch receiver is liable to very great stress if made of wrought iron; the stress on the rivets causes an old pitch receiver to fume at every joint unless put under suction as above described. Some wrought-iron pitch receivers are lined with split bricks to minimise this strain, but the time of cooling is, of course, lengthened. To bring this cooler more under command, at one works the plan has been adopted of placing a coil of wrought-iron pipe in the receiver, through which air is pumped in desired quantities, the hot air escaping from the open end of the worm outside the pitch receiver. In this way pitch can be run off (the French method is used) without closing the doors of the covered pitch bay, which could not be done in summer time before the adoption of this device, the works being surrounded by dwelling houses.

The best system of all, for large works, for running off the pitch, is that known as the French system, introduced by Mr. Lyon from Paris into the Beckton Works, and adopted by many large works since that time. It was described by Mr. Jackson in XXIX. Report, p. 89, in all its essential features, the principle being the forcing out of the cooler pitch by the hotter batch run off from the still. In the largest works of this kind, however, in the district the pitch receiver is of brick, with an iron top, and much of it is above ground.

There remain several small works with one 3 or 5 ton still, worked at irregular intervals, with little or no provision for dealing with any of the foul gases evolved, and using the still itself as a pitch receiver. Many of these, however, do not carry on the distillation beyond the point of creosote oil, pitch containing anthracene being valued for its toughness, especially by railway engineers on their bridges, where vibration is apt to crack the concrete or asphalte made from pitch, tar, and ashes; the second evolution of sulphur compounds in works of this type is therefore much diminished. A good deal has been done by the tar distillers, by whom, as a class, I have been met in the best possible spirit of loyalty, though, of course, there are exceptions, chiefly among the smaller manufacturers, who dislike being interfered with in any way at all.

R. Forbes Carpenter.

Prestwich, January 31, 1894.

District No. 5.—South Midland.

Edward Jackson, Esq., F.I.C., F.C.S.

The number of works registered =

9	alkali works.
152	scheduled and other works.
Total - 161	

District No. 5—*continued.*

The following are the separate processes under inspection:—

3	alkali works.
4	hydrochloric acid (cylinder) works.
3	hydrochloric acid (waste pickle recovery) works.
2	copper works.
26	sulphuric acid works.
46	chemical manure works.
1	gas liquor work.
2	muriate of ammonia works.
67	sulphate of ammonia works.
23	tar works.
1	chlorine work.
8	cement works.
6	salt works.
7	sulphur recovery.
18	nitric acid works.
7	nitrate of iron works.
4	Venetian red works.
Total - 228	

Thus, by the amended Act of 1892, 31 additional processes have been brought under inspection for the first time in this district. There are only 16 new registrations, as many of the processes are carried on in works already registered. For instance, of the 23 tar plants 14 are connected with works previously on the register for the manufacture of ammonia salts. There are also four works where Venetian red is produced by the roasting of copperas, three plants for the recovery of hydrochloric acid from waste pickle, and one additional nitrate of iron work.

Under the 1881 Act six new works have been added to the register this year:—

2	for the	manufacture of	sulphate of ammonia.
1	,,	,,	salt.
2	,,	,,	nitric acid
1	,,	,,	chemical manure.
1	,,	,,	sulphuric acid.

The following works have ceased to register this year:—

No. 1456 - - - -	chemical manure.
,, 1533 - - - -	,, ,,
,, 1495 - - - -	salt.
,, 1444 - - - -	chemical manure.
,, 1452 - - - -	sulphate of ammonia.
,, 1438 - - - -	salt.

The average escape of hydrochloric acid per cubic foot in alkali and copper works = 0·10 grain, and the amount escaping compared with that produced = 2·80 per cent. in alkali works.

The total acids in one cubic foot of chimney gases = 0·67 grain as SO_3.

In the sulphuric acid and alkali works the average escape from the chambers into the chimney = 1·41 grains as SO_3 per cubic foot.

In the chemical manure works the average of the tests made of the acid gases escaping into the chimney during the manufacture of superphosphate = 0·23 grain, total acids as SO_3 per cubic foot, and the percentage condensed from the same shows 93·4 per cent. of that generated.

The average of the tests made of the smoke escaping from the chimneys of salt works = 0·05 grain total chlorine as HCl, and 0·34 grain total acids as SO_3 per cubic foot.

Alkali and Copper Works.

There are eight alkali works on the register. In two works formerly registered the alkali plant has remained idle all the year, and it is doubtful if in either case it will be restarted.

District No. 5—*continued.*

At work No. 1463 there is not much to record beyond ordinary renewals, always considerable.

The fine new block of condensers has been completed at No. 1437 and put in operation this year. The work has been well and very substantially carried out.

No. 1477. This copper extracting work, owing to the coal strike, remained idle for about 16 weeks this year. There were some difficulties experienced on re-starting after such a long stoppage, notably the pipes conveying the river water, which pass underground, to the condensers, though I have no infraction of Act limits to report.

No. 1500 has still been a case causing anxiety, particularly as the refinery has been closed, and there were no diluting gases passing to the chimney from this source. On the whole, however, high tests have been much less frequent than in 1892, and when they have occurred have generally been traceable to chlorine from the usual causes, shortness of salt in the ore, or irregularity in working time of furnaces. During the coal strike the furnaces became rather "out of turn," owing to the low class of fuel obtainable. 23 visits have been paid to this work and 40 tests of the chimney gases taken during the year. There has been less fluctuation in the escape, though there are six tests above Act limits to record. The average for the year = 0·16, as against 0·18 grains HCl per cubic foot for 1892.

ALKALI AND COPPER WORKS.

Giving the Averages of the Tests made during the year.

Register Number.	Number of Chimney.	Total Acids in One Cubic Foot of Chimney Gases as SO_3.	Hydrochloric Acid in One Cubic Foot of Chimney Gases.	Number of Vitriol Chamber Exit.	Total Acidity of Gases escaping from Vitriol Chambers, as SO_3 per Cubic Foot.
		Grains.	Grains.		Grains.
				1	1·00
1463	1	0·40	0·12	2	1·23
	2	0·45	0·06	3	0·56
				4	0·30
				1	0·95
	1	0·60	0·11	2	1·11
1437	2	0·30	0·04	3	2·10
	3	1·10	0·12	4	0·77
	4	0·90	0·08	5	1·80
1477	1	0·45	0·09		
	2	0·50	0·11	Copper works.	
1500	—	1·33	0·16		
1465	—	Cylinder works.		—	1·60
1468	—	—	—	—	1·64
1483	—	—	—	—	1·05
Averages	1893	0·67	0·100	—	1·13
	1892	0·64	0·116	—	1·38

District No. 5—*continued.*

SULPHURIC ACID WORKS, INCLUDING ALKALI WORKS,

Giving the Averages of the Tests made.

Register Number.	O.V. Exit. Total Acidity as Grains SO_3 per Cubic Foot.				Average for Year.	Remarks.	Average for preceding Year.
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.			
1416	0·70	0·70	2·90	0·90	1·30	For a small plant the escape is regular here.	1·46
1417	—	0·50	0·80	0·65	0·65	Most carefully worked	0·38
1429	0·70	—	2·00	0·50	1·07	H_2S and spent oxide used here.	0·65
1451	3·33	1·50	3·60	1·50	2·48	This is a small plant with recovery columns burning coal pyrites and sulphur.	1·48
1453	1·45	0·20	—	0·59	0·72	The erection of new burners here this year has made a great improvement.	2·38
1455	1·20	1·00	—	0·40	0·87	Largely rebuilt this year; very well managed work.	0·70
1460	0·20	3·30	0·40	—	1·30	An excessive escape was found here in June, due to bad spent oxide.	0·63
1465	2·90	0·80	—	1·10	1·60	——	0·70
1471	1·70	0·80	7·17	0·80	2·62	The high tests in the 3rd quarter were considered to be due to change in management after the unfortunate death of the foreman.	0·92
1468	0·95	1·00	1·80	0·40	1·04	The improved working under the new management still continues here.	0·99
1478	0·80	0·40	—	—	0·60	This work, which was closed in 1892, has been reopened this year, but has been idle for the latter half.	—
1512	0·40	1·50	0·50	0·70	0·78	——	0·46
1483	0·40	2·30	1·00	0·50	1·05	Plant well watched; continuous tests.	2·08
1472	1·80	—	—	2·20	2·00	Coal pyrites, spent oxide, and H_2S; little variation usually in escape.	1·10
1487	0·70	1·40	0·40	0·30	0·70	The large chamber space employed here keeps the escape down. No tests are taken.	0·80
1492	0·40	7·25	3·50	3·08	3·56	There has been alteration in the method of working the chamber plant here. Prior to this year there had been no test above Act limits recorded.	1·07
1454	3·80	1·60	—	1·60	2·33	The high average for the first quarter was due to an excessive escape in March, of short duration, on starting the sulphate of ammonia plant, the H_2S from which passes into burners.	1·38

District No. 5—*continued.*

Register Number.	O.V. Exit. Total Acidity as Grains SO_3 per Cubic Foot.				Average for Year.	Remarks.	Average for preceding Year.
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.			
1489	1·20	0·20	0·60	0·50	0·62	H_2S from ammonia plant is also passed into burners here.	0·22
1514	1·35	—	—	0·79	1·03	Considerable renewals were made during the summer, the plant remaining idle for some time. Very well watched.	0·79
1494	3·92	1·00	3·60	1·80	2·58	The escape here has varied very much, particularly in the early part of the year, owing, it was considered, to re-arrangement of plant. A new scrubber was added in February.	1·25
1421	—	—	—	—	—	Been idle all year - -	2·95
1453	1·00	1·00	—	1·10	1·07	——	3·32
1505	3·00	2·20	—	—	2·60	This work was much affected by the coal strike, and has been idle for a considerable time.	2·30
1437	0·84	2·64	0·80	0·30	1·15	The plant here has as usual been maintained in a high state of efficiency.	1·43
1463	0·23	0·30	0·90	1·27	0·68	There are five O.V. series here with all modern appliances. Regular tests are taken of the escaping gases.	1·23
1497	0·48	0·53	1·76	1·08	0·96	——	1·66
Averages	-	-	-	-	1·41	- - - -	1·28

Cement Works.

A new plant for the manufacture of Portland cement, from the carbonated mud from the Chance process with local clay, has been erected and put into successful operation this year at the works of the Oldbury Alkali Company. In the remaining seven works there has been no change of importance to report. The proportion of open and closed kilns still remains the same.

Nitric Acid Works.

Practically there have been no changes in this class of works. There has been a new work, of the usual cylinder type, registered, and one work has been divided into two for trading purposes, necessitating an additional registration fee.

District No. 5—*continued.*

Chemical Manure Works Tests.

Register Number.	Weight of Manure discharged into Den at Time Test was taken.	Class of Materials treated at Time of Test.	Remarks as to Draught.	Total Acidity of Gases leaving Mixing Apparatus as SO_3 per Cubic Foot.	Total Acidity of Gases leaving Condensing Apparatus as SO_3 per Cubic Foot.	Amount of Acid condensed compared with that produced.
	Tons.			Grains.	Grains.	Per cent.
1453	13	Belgian and American	Fans	10·0	0·20	98·0
1478	16	Carolina and bones	Chimney	3·0	0·50	83·4
1455	50	Carolina and Belgium	Fan	4·5	0·10	97·8
1465	16	American and Belgian	Chimney	26·5	0·10	99·4
1417	40	Coprolites and bones	Fans	2·2	0·25	88·6
Averages					0·23	93·4

Gas Liquor, Sulphate of Ammonia, and Muriate of Ammonia Works.

In 69 works the manufacture of either sulphate and muriate of ammonia, or the concentration of gas liquor is carried on. One work formerly making sulphate of ammonia has been closed during the year. Two new works have been started.

The works generally have been found in good repair, and with one or two exceptions, the purifying arrangements have been found satisfactory.

The following are among some of the most notable improvements:—

In four works, where the oxide purifiers were rather too small for the make, requiring frequent changing, they have been increased in size. Work No. 1416, the oxide area has been more than doubled, also at No. 1513 it has been much added to. Nos. 1515 and 1457, new purifiers have been built. In two cases continuous stills have been erected, replacing intermittent apparatus. The stills and condensers at Work No. 1497 have been renewed and improved, and two additional saturators added. The special plant for evaporating the spent liquor and recovering products therefrom, at Work No. 1527, is now in successful operation. Some time ago the ammonia plant had to be stopped here, owing to the difficulty in disposing of the spent liquor. The question, so far as this work is concerned, has now been overcome. The waste liquor from this class of works is difficult to deal with satisfactorily in many cases. The offence is much diminished if the "devil's water" is not allowed to flow away with it, containing H_2S in the free state. The liquor should also be well settled to deposit the carbonate of lime. One of the most notable improvements during the year in the direction of fuel economy has been at No. 1514. The spent liquor here as it flows from the still is made to warm the gas liquor up to 130° F. on its way to the superheater, and the saturator gases leaving the superheater heat the water supplying the steam boilers, thus the waste heat from both spent liquor and saturator gases is effectively utilised. No. 1526, Claus sulphur kiln and chambers have been erected, in place of oxide purifier. Five works now use this plan of dealing with the noxious gas.

Seven works continue to burn the H_2S for the production of vitriol.

Carbonising (Coal) Works.—These works, of which there are seven in this district, have not been working nearly up to their full capacity this year. Several stopped entirely during the coal strike, being unable to obtain "slack" except at a considerable advance in price, without corresponding rise in products. The sulphate of ammonia manufactured from this source has therefore been reduced by one-third on 1892 production. One work has been permanently closed.

District No. 5—*continued.*

Salt Works.

Register Number.	Number of Chimney from which Test was taken.	Total Acids as SO_3 per Cubic Foot of Smoke.	Total Chlorine as HCl per Cubic Foot of Smoke.
		Grains.	Grains.
1442	5	·30	·08
,,	7	·50	·06
,,	8	·70	·09
,,	13	·40	·05
,,	14	·70	·10
,,	15	·70	·07
,,	20	·80	·08
,,	1 to 3	·20	·04
,,	1 to 5	·40	·04
1516	1	·20	·05
,,	2	·20	·02
,,	4	·10	·03
,,	5	·20	·04
,,	6 and 7	·30	·04
,,	8	·10	·04
,,	9	·20	·05
,,	28	·30	·05
,,	48	·40	·05
1570	1	·10	·03
,,	2	·30	·05
1518	—	·10	·03
Average - -	- - -	0·34	·05

Two works have been closed during the year, and a new work registered.

The Worcestershire works have been very actively employed the latter half of the year, owing to the coal strike, and the difficulty in obtaining fuel in the Cheshire District, whereas "Black Country" coal is largely used at Droitwich and Stoke.

Tar Works.

Of the 23 tar works in this district, 19 carry on the ordinary distillation process with the usual products. In one case the tar is totally different, being obtained from blast furnace gases. Three works do not carry the distillation so far as to make pitch, producing only what is termed "prepared tar." There are in all 98 tar stills; the size differs in the various works, as will be seen from the following statement of capacities:—

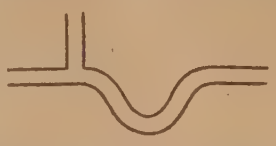
There are in operation	29	-	25	tar stills.
,, ,, ,,	9	-	20	,,
,, ,, ,,	18	-	15	,,
,, ,, ,,	33	-	10	,,
,, ,, ,,	9	-	5	,,

Tars are widely different in composition, so that methods and dimensions of apparatus for dealing with the offensive gases and vapours vary considerably.

The progress made towards diminishing the offence from this class of works has, I think, been very fair. Much has yet to be done, however, before many of the works are up to the best standard of efficiency. When the works were brought under inspection, it was found that in only six cases had any attempt been made to deal with the offensive gases from the worm ends of the stills. Now there are 16 works where these gases are treated either by burning, condensation and scrubbing, with oxide of iron or lime purification. There are three ordinary tar plants where the required improvements in this direction have not yet been carried out.

District No. 5—*continued.*

As to the methods of conducting away the gases from the worm ends, there may be said to be three. In some works suction is produced by a steam jet, in others by a pump. This doubtless has an advantage over steam as the gases are kept dry and are more conveniently treated either by combustion or absorption in purifiers. In several works the seal of the distillate alone, by using a bent pipe, is relied upon to force the gases on through the foul gas main. The pipes are liable to stop up, and means should be provided for passing steam through occasionally. Instead of the bent pipe, an excellent arrangement is to have the receiver and separator a tight iron box, which is kept under suction by one of the plans referred to above.



The methods in use in this district for rendering the gases innoxious may be summarised as follows:—

By combustion in still or boiler fire, or special furnace, the gases passing through a water seal before entering the place of combustion.

Condensation or scrubbing, either with water or oil, preferably the latter, and final treatment by passing through oxide of iron or lime.

With regard to cooling and running off the pitch, arrangements of plant vary considerably. The nuisance from this source can be very much diminished by the exercise of greater care as to the time the pitch is kept in the coolers. It is frequently allowed to be discharged much hotter than is necessary. The French coolers, referred to in last year's report, answer very well when the supply of pitch is fairly continuous. Interesting experiments are being carried on in one work for the purpose of treating the residual air which escapes, charged with pitch vapours, from the coolers when a fresh quantity of hot pitch is run in, by condensing these vapours.

METHODS EMPLOYED AT TAR WORKS FOR DEALING WITH THE NOXIOUS VAPOURS.

Register Number.	Method of treating Gases from the Worm Ends of the Stills.		Plant employed for cooling the Pitch.	
	Prior to inspection.	Improvements, or method at present employed.	Prior to inspection.	Improvements, or method at present employed.
1583	Drawn by steam jet and passed through oxide of iron.	Foul gas pipe enlarged.	Iron pitch cooler and open bays.	—
1429	Drawn by steam jet and passed into still fire.	—	Iron cooler, and brick and galvanised iron pitch house.	—
1575	Noxious gases escaped into the air from worm ends.	Passed through seal and under boiler fire.	Brick cooler and open bay.	—
1574	Drawn by pump through large oil scrubbers and condensers.	—	Brick coolers with French weir and open bays.	—
1582	No provision for dealing with gases from worm ends.	Alterations not yet made.	Pitch run direct from stills into open bays.	Alterations not yet made.
1498	Found steam jet in disuse, and gases escaping into air.	Drawn by steam jet and passed into boiler fire.	Iron pitch cooler and open bays.	—
1584	No provision for dealing with gases from worm ends.	Drawn by steam jet and passed into still fire.	Brick cooler and open bay.	Improved arrangement for running off pitch from cooler.

District No. 5—*continued.*

METHODS EMPLOYED AT TAR WORKS FOR DEALING WITH THE NOXIOUS VAPOURS—*continued.*

Register Number.	Method of treating Gases from the Worm Ends of the Stills.		Plant employed for cooling the Pitch.	
	Prior to inspection.	Improvements, or method at present employed.	Prior to inspection.	Improvements, or method at present employed.
1416	No provision for dealing with gases from worm ends.	Drawn by steam jet and passed into still fire.	Iron coolers and galvanised iron pitch house.	Coolers made tighter.
1535	Iron works tar, worm ends open.	—	Iron cooler and open bays.	—
1465	No provision for dealing with gases from worm ends.	Drawn by steam jet and passed into boiler fire.	Pitch run into open bays through 30 feet of iron piping.	—
1466	"Prepared tar" only made. Worm end open.	—	No pitch made.	—
1469	No provision for dealing with gases from worm ends.	Passed through scrubber and oxide of iron purifier.	Pitch run direct from stills into open bays.	Brick and iron pitch cooler and open bays.
1544	Passed through condensers, scrubbers, and oxide of iron purifiers.	—	Iron coolers and brick pitch houses with iron doors.	Considerable improvement made in coolers, and in dealing with vapours issuing therefrom.
1531	No provision for dealing with gases from worm ends.	Alterations not yet made.	Iron coolers and open bays.	—
1521	No provision for dealing with gases from worm ends.	Drawn by steam jet and passed through condensers and oxide of iron purifiers.	Iron pitch coolers and open bays.	—
1472	No provision for dealing with gases from worm ends.	Passed through oil scrubber and oxide of iron purifiers.	Brick and iron cooler. French weir and open bays.	—
*1513	No provision for dealing with gases from worm ends.	Alterations not yet made.	Pitch cooled considerably in stills, remaining 24 hours, then run direct into open bays.	—
1562	Drawn by pump, and passed into boiler fire.	—	Brick coolers and galvanised iron pitch houses.	—
1536	Drawn by steam jet and passed into boiler fire.	Drawn by pump and passed into special furnace.	Brick cooler with French weir and open bays.	Iron and brick cooler, &c.
1556	No provision for dealing with gases from worm ends.	Drawn by steam jet and passed into still fire.	Iron cooler and open bays.	—
1540	No provision for dealing with gases from worm ends.	Passed into still fire.	Brick cooler and open bays.	Brick cooler and brick pitch house with iron door.
1572	"Prepared tar" only made here.	—	No pitch made.	—
1587	"Prepared tar" only made here.	—	No pitch made.	—

* Very small work, two 5-ton stills. Stills are set very low, not sufficient fall for pitch to admit of cooler intervening between still and bays, with plant as at present arranged.

District No. 5—*continued.*

MURIATIC ACID (OTHER THAN ALKALI) WORKS.

There are four furnaces at three works, for the recovery of hydrochloric acid from galvanisers' waste pickle, by Turner's process, previously described in former reports. The hydrochloric acid condensed = about 15° T.

Improved arrangements of water supply have brought about the necessary reduction in the escape, as will be seen from the following record of results.

In this class of works the endeavour has been to bring the amount escaping within the figure applying to alkali works, viz., 0·20 grains H.Cl. per cubic foot. This is now recognised as the limit in these works, and the escape usually comes within it.

The following table gives some of the tests made:—

Register Number.	Date.	Hydrochloric Acid per Cubic Foot escaping.	Remarks.
	1893.	Grains.	
1577	April 18	0·32	These tests were taken in flue leaving condenser.
	" "	0·34 repeated later.	These tests were taken in flue leaving condenser.
	July 4	1·50	These tests were taken in flue. Water supply deficient.
	" 17	0·15	Test taken in chimney.
	Oct. 28	0·09	Test taken in chimney.
1579	Mar. 14	0·61 No. I. furnace.	Test taken in flue leaving condenser.
	" "	1·08 No. II. furnace.	Test taken in flue leaving condenser.
	" "	1·02 No. II. furnace, repeated later.	Test taken in flue leaving condenser.
	" 21	0·40 No. I. furnace.	Test taken in chimney.
	" "	0·10 No. II. furnace.	Test taken in flue leaving condenser.
	June 26	0·13 No. I. furnace.	Test taken in chimney. Water supply improved.
	" "	0·04 No. II. furnace.	Test taken in flue leaving condenser.
	Sept. 5	0·45 No. I. furnace.	Test taken in chimney. Very little water on condenser owing to break down in pipes.
	" "	0·06 No. II. furnace.	Test taken in flue leaving condenser.
	" 26	Idle.	
	" "	0·06 No. II. furnace.	Test taken in flue leaving condenser.

VENETIAN RED WORKS.

Very little progress has so far been made towards more completely arresting the acid gases of sulphur given off when copperas is roasted for the production of Venetian red, &c. There are two classes of furnaces employed for this process, blind roasters and open kilns. The former are similar to a salt-cake furnace, and the gases are conducted through a

District No. 5—*continued.*

series of earthenware pipes, where some acid is condensed, thence into coke scrubbers down which water flows. As would be expected, sulphurous acid being only sparingly soluble in water, a considerable amount escapes into the chimneys.

At one work scrap iron has been placed in the tower instead of the coke, which with the introduction of air and steam is expected to arrest the sulphurous acid, producing sulphate of iron which, after crystallization, could be utilised in the furnaces. The sulphate of iron solution so far obtained is very weak, and a pump is now being fixed to return the liquor to the tower to concentrate it, and so reduce the cost of evaporation necessary to bring the liquor up to the crystallizing point. These experiments are still in progress, so that it is premature yet to speak as to the results. The acid gases from the blind roasters being undiluted are much more easily dealt with than those from the open kilns where the products of combustion pass over the trays in which the copperas is placed, and along with the sulphur acids to the condensers. Coke scrubbers with water shower are also used here, but though some of the acid vapours are removed, a very considerable quantity escape, as the following figures will show.

Limestone could be used in the towers, as in the Claus sulphur-recovery process at sulphate of ammonia works, but it is hoped scrap iron will be found better, as the economical advantages are obvious.

The amount of acid sulphur gases escaping varies considerably during the roasting process, the greatest quantity being reached as the kiln attains its maximum heat. The length of time required to complete the operation also varies, depending on the class of colour required—from 20 to 24 hours being the usual time—so also does the air admitted, and this constitutes one of the principal difficulties attending any plan of dealing with the gases from open roasters.

TABLE SHOWING THE AMOUNT OF ACID VAPOURS ESCAPING FROM THE CHIMNEYS ATTACHED TO OPEN KILNS IN VENETIAN RED WORKS.

Total Acids as SO_3 per Cubic Foot in Chimney Gases.	Remarks.
Grains.	
3·60	Gases leaving the kilns = 26·6 grains.
0·80	Two kilns in operation, No. I. kiln exit = 74·4 grains. No. II. kiln exit = 15·3 grains. There appeared to be a block in the condensers, as much vapour was escaping from furnace doors and flues. The acidity of chimney gases was also low, confirming this.
4·30	One kiln in work.
5·60	Four kilns in work.
1·20	Two kilns just starting.
5·60	Five kilns in various stages.
5·70	One kiln in work.
1·30	One kiln nearly finished.
0·80	Two kilns far advanced.

N.B.—In the chimneys the sulphur acids are diluted with products of combustion from steam boilers, furnace fires, and so forth.

District No. 5—*continued.*

ACIDITY OF GASES FROM BLIND ROASTERS AT VENETIAN RED WORKS.

The following tests I. to VI. were taken at the same furnaces on different dates and under varying conditions:—

Condition of Furnace at Time of taking Test.	Total Acids as Grains SO_3 per Cubic Foot.	Remarks.
I. Two furnaces ready for drawing. Acidity of chimney gases.	0·60	
II. Two furnaces, six and eight hours respectively after starting. Acidity of gases leaving furnaces.	189·0	
Acidity of gases after passing through cooling pipes.	54·0	
Acidity of gases after passing up coke and water scrubber.	17·0	The difference between these two figures is due to dilution.
Acidity of chimney gases - -	2·0	
III. Two furnaces, charges six to eight hours from finishing. Acidity of chimney gases.	0·60	
IV. Two furnaces ready for drawing acidity of chimney gases.	0·40	
V. Acidity of gases entering tower packed with scrap iron, with air and steam.	26·0	
Acidity of gases leaving tower -	6·9	
Acidity of chimney gases - -	1·5	
VI. Acidity of gases entering tower packed with scrap iron, with air and steam.	18·1	
Acidity of gases leaving tower -	5·8	
Acidity of chimney gases - -	1·8	

ACIDITY OF GASES FROM OPEN KILNS AT VENETIAN RED WORKS.

Condition of Furnace at Time of taking Test.	Total Acids as Grains SO_3 per Cubic Foot.	Remarks.
One kiln at work:—		
Acidity of gases leaving kiln - -	26·0	
Acidity of gases leaving water wash-tower packed with tiles.	17·0	
Acidity of chimney gases - -	2·4	

EDWARD JACKSON.

Birmingham,
January 1894.

District No. 6.—South-west of England and South Wales.

A. C. Fryer, Esq., Ph.D., M.A., *Inspector.*

There were registered in this district during 1893:—

6 alkali (including wet copper) works.
181 other (scheduled) works.

Total 187

The number of separate processes under inspection has been 225, consisting of—

3 alkali works.
1 hydrochloric acid (cylinder) works.
2 copper works (wet process).
38 sulphuric acid works.
37 chemical manure works.
4 nitric acid works.
67 sulphate of ammonia works.
3 muriate of ammonia works.
2 chlorine works.
9 cement works.
1 alkali waste.
1 sulphur recovery.
4 Venetian red works.
1 lead deposit works.
35 arsenic works.
11 tar works.
7 zinc works.

Total 226

The processes above enumerated have been for the most part in regular operation throughout the year, and have been periodically inspected with that degree of frequency which their relative importance demanded.

In this inspection some 766 visits were paid to the works for the purpose of examining the condition of the various plants, and 540 chemical tests have been applied in order to ascertain the quantities of noxious gases escaping into the air.

The following works have ceased to register this year:—

No. 1790 - - - - Chemical manure.
,, 1810 - - - - Sulphuric acid.
,, 1830 - - - - Chemical manure.
,, 1833 - - - - Copper (wet process).
,, 1875 - - - - Sulpuric acid.
,, 1881 - - - - Ammonium sulphate.
,, 1916 - - - - Ammonium sulphate.

New Works.

Fifty-three new Works have been registered during the year:—

1 for the manufacture of chemical manure.
1 ,, ,, ammonium sulphate.
3 ,, ,, Venetian red.
1 ,, ,, lead deposit.
35 ,, ,, arsenic.
5 for the distillation of tar.
7 for the smelting of zinc ores.

District No. 6—*continued.*

ALKALI AND COPPER WORKS.

There are six works, including wet-process copper works, on the register for the year, and 25,465 tons of salt have been decomposed during the 12 months.

The average escape of hydrochloric acid from the chimneys of the alkali and copper works, together with the total acidity of the various vitriol chamber exits attached to these works, are given in the following Table:—

Register Number of Work.	Number of Exit or Chimney.	Total Acidity of Chimney Gases given as SO_3 per Cubic Foot.	Hydrochloric Acid per Cubic Foot of Air escaping.	Relation of Hydrochloric Acid escaping to that produced.	Number of Vitriol Chamber Exit.	Total Acidity of Gases escaping from Vitriol Chambers given as SO_3 per Cubic Foot.
No.	No.	Grains.	Grains.	Per cent.	No.	Grains.
1783	1	0·88	0·154	—	1	2·78
1796	1	1·02	—	—	1	1·81
					2	2·08
					3	1·75
					1	0·50
					2	0·82
					3	1·39
					4	0·93
1818	1	0·63	0·120	1·63	5	0·65
					6	0·63
					7	0·77
					8	1·01
1835	1	1·19	0·107	1·13	1	0·99
				—	2	2·00
	1	0·46	0·055	—	1	0·50
	2	—	0·064	—	—	—
1843	3	—	0·081	—	—	—
	4	—	0·080	—	—	—
1853	1	1·89	0·139	—	—	—
Averages	—	1·01	0·100	1·38	—	1·24

SULPHURIC ACID WORKS.

Including the alkali works there are 38 works in this district where sulphuric acid is manufactured.

Nine new vitriol chambers, 87 pyrites kilns, 4 Glover, and 5 Gay-Lussac towers have been erected, while a three works the sulphuric acid plant has been extensively remodelled.

The starting of plant, or the restarting after temporary stoppages, are responsible for the few infractions of Act limits.

The following Table shows the total acids in one cubic foot of exit gases from vitriol chambers in terms of SO^3:—

District No. 6—*continued.*

Register Number of Work.	Number of Exit.	Average.	Register Number of Work.	Number of Exit.	Average.
1770	1	0·99	1818	6	0·63
1773	1	1·17		7	0·77
1774	1	2·45		8	1·01
	2	1·25	1820	1	1·74
1778	1	1·94	1821	1	0·76
1779	1	1·68	1824	1	1·52
1783	1	2·78	1828	1	1·53
1784	1	2·77	1831	1	0·64
	2	2·52	1835	1	0·99
	3	2·55		2	2·00
1796	1	1·81	1843	1	0·50
	2	2·08	1844	1	0·60
	3	1·75	1845	1	1·55
1798	1	1·89	1846	1	1·65
	2	2·47	1847	1	0·29
1799	1	1·92	1852	1	1·55
	2	1·33	1861	1	1·64
1801	1	2·22	1874	1	3·20
1808	1	1·43	1878	1	1·01
	2	1·72	1891	1	1·08
	3	0·79	1893	1	1·56
1809	1	0·76		2	1·61
1813	1	0·78		3	2·13
1816	1	1·90		4	2·23
1818	1	0·50	1894	1	1·05
	2	0·82	1918	1	2·30
	3	1·39			
	4	0·93			
	5	0·65	Average -	—	1·50

The following Table shows the amount of acid escaping from sulphuric acid rectifying condensers. The figures represent the average of tests made throughout the year :—

Register Number of Work.	No. of Exit.	Grains SO_3 per Cubic Foot.
1774	1	1·34
1778	1	0·51
1779	1	0·52
	2	0·42
1784	1	1·01
	2	1·05
1787	1	0·40
1796	1	1·64
1798	1	0·96
1799	1	0·47
1808	1	0·80
	2	0·44
1809	1	0·77
1816	1	0·34
1820	1	0·93
1878	1	0·40
1893	1	0·86
	2	0·48
Average -	—	0·74

District No. 6—*continued.*

Chemical Manure Works.

There are 37 works registered for the manufacture of chemical manure, and during the year improvements have been made at the condensing plant belonging to several of the works in this district. Additional space has been added to the den at No. 1821, while the draught at No. 1831 has been improved. The condensing plant belonging to No. 1891 has for some time been quite inadequate. Repeated representations have been made to the owners, and after long delay and the erection of several experimental condensers, a new plant has been constructed. The den and flues have been rebuilt, a wash-tower, 25 feet high, with internal scrubbing surface and an adequate water supply has been erected, and a good draught is obtained in the whole apparatus.

The following Table shows the amount of acid vapour escaping from chemical manure works. The figures are the average of tests made throughout the year:—

Register Number of Work.	Total Acidity of Gases leaving Mixer and Den as SO_3 per Cubic Foot.	Total Acidity of Gases after washing Apparatus before entering Chimney as SO_3 per Cubic Foot.	Amount of Acid condensed compared with that produced.
No.	Grains.	Grains.	Per cent.
1770	2·40	0·20	91·67
1782	5·75	0·42	92·70
1783	42·00	0·30	99·29
1797	2·50	0·20	92·00
1813	5·20	0·26	95·00
1821	5·08	0·38	92·52
1822	5·46	0·40	92·68
1823	6·40	0·32	95·00
1831	13·00	0·56	95·69
1842	20·48	0·25	98·78
1845	3·00	0·17	94·34
1847	4·20	0·20	95·24
1852	4·00	0·24	94·00
1861	3·84	0·22	94·27
1897	2·10	0·18	91·43
1898	1·32	nil	100·00
1911	1·40	0·20	85·72
1966	0·68	0·20	70·59
Average	7·16	0·26	96·37

Nitric Acid Works.

There are four works registered for the manufacture of nitric acid, and the average recorded escape of total acids from the nitric acid condensers = 0·45 grains total acidity as SO_3 per cubic foot.

Ammonium Chloride and Sulphate Works.

There are 70 works registered where the manufacture of muriate and sulphate of ammonia is carried on, and these have produced 7,100 tons of ammonia salts during the year.

On May 2nd the oxide of iron purifiers at No. 1855 were found to be in a very foul condition. It is to be feared that neglect and carelessness had a good deal to do with the cause of the evil. A sufficiently sharp warning has been given, and no leniency should be expected in the future.

During the 12 months three sulphate of ammonia plants have been rebuilt; six works have put up new saturators; four have enlarged their

District No. 6—*continued.*

oxide of iron purifiers; three have added coke scrubbers or water condensers to their plants, and two now absorb the sulphuretted hydrogen in oxide of iron, when previously it was burnt under the boiler fire.

A little more than 80 per cent. of the total sulphate and muriate manufactured in this district is made by the continuous process, and only 20 by the intermittent. During the year one work has adopted the former method.

The ingenious form of saturator invented by Mr. C. Stafford Ellery, is still in use at the Bath Gas Works. It is so constructed that the sulphate of ammonia settles to the lowest part of the funnel-shaped bottom, where a special valve is fitted to draw off the salt as it is precipitated. Mr. Ellery informs me that a saturator 4 ft. 6 in. square will turn out 20 tons of ammonium sulphate in six days, and, if it were working continuously, the output would be at the rate of 3 tons 10 cwts. a day.

Cement Works.

The manufacture of cement is carried on at nine works in this district, and there has been no material alteration in this class of works during the year.

I have analysed some of the fine dust deposited in the chambers at No. 1,798, with the following results:—

	Per cent.
Matter volatile on slightly heating	1·02
Matter volatile on strongly heating	0·81
Silica and insoluble matter	5·24
Iron and alumina	2·04
Lime	4·26
Magnesia	0·58
Chlorine	0·62
SO_3	38·44
Potash and soda	46·99

The silica and alumina were high and the percentage of iron was low.

Venetian Red Works.

Copperas is roasted at four works for the manufacture of Venetian Red, either in open kilns or closed furnaces. When open kilns are used the copperas is placed in shallow saggers, several fires are lighted round the kiln, and, as the products of combustion pass over the copperas, the acid vapours are driven off. About 12 hours after the fires have been started the sulphur acids begin to come off, and the large escape continues for several hours. In order to arrest the noxious gases one work has erected a tower which has been packed with scrap iron; another is passing the acid vapours through a tower, 25 ft. in height, packed with broken saggers, and down which milk of lime and water flows; while a third is utilising the fumes by passing them into an O.V. chamber, where they are converted into sulphuric acid.

An interesting experiment was made at No. 1936, where a tower packed with chalk, down which water flowed, was employed for arresting the acid vapours. The following results were obtained:—

——	SO_3.	SO_2.
Acidity in gases before passing through tower. Grains per cubic foot.	1·58	10·00
Acidity in gases after passing through tower. Grains per cubic foot.	0·58	1·95

District No. 6—*continued.*

The following Table shows the amount of acid vapours escaping from the condensers at Venetian Red works. The figures are the average of tests made throughout the year :—

Register Number of Work.	Total Acidity of Gases as SO_3 per Cubic Foot.
No.	Grains.
1874	3·20
1926	1·76
1936	1·20
Average - -	2·05

Lead Deposit Works.

There is only one work registered in this district where the process of smelting the sulphate of lead found as a deposit in the sulphuric acid chambers of alkali and other works is carried on. This work has a condenser, and the following is the result of an analysis of the exit gases :—

	Grains, per Cubic Foot.
Total acidity as SO_3 - - - - -	0·30
Chlorine (Cl) - - - - -	Trace.
Total solids at 100° C. - - - - -	0·72
Total volatile matter - - - - -	0·22

Arsenic Works.

There are 35 works registered in this district for the preparation of arsenious acid, and more than 5,000 tons have been produced during the year.

The percentage of arsenic in the ores treated varies much. The tin ores are at one extreme, and the arsenic obtained is but a bye-product, while the arsenic in pyrites may vary from 12 to 30 per cent. Ores are raised which may contain any or all of the following :—Arsenical pyrites, iron pyrites, copper pyrites, tinstone, wolfram, blende, and galena, besides quartz and other non-metallic minerals. Arsenical pyrites or mispickel has the formula $FeAs + FeS_2$.

The ore is roasted in an ordinary reverbatory furnace, or in a rotating or revolving calciner, or in kilns. The Brunton rotating calciner has two fireplaces, the flames from each of which traverse half the circle, and unite at the flue opposite. The bed of this furnace revolves at the rate of about once in a quarter of an hour. The centre of the bed is higher than the circumference, and as the ore is introduced in the centre it gradually finds its way towards the circumference, and is turned over by numerous iron scrapers placed obliquely to the radii. After it is roasted it falls into a chamber below. The Oxland calciner is a wrought-iron cylinder, mounted in an inclined position, and made to revolve slowly by machinery about once in eight or ten minutes. The fire-place is at the lower end. The ore is introduced at the top, and as the tube revolves it is lifted up so that the falling particles become exposed to the oxidising influence of the flame and air passing through it. Each turn of the cylinder brings the ore a little lower, and it at last falls into a chamber in a calcined state. By whichever process the ore is roasted the arsenic and sulphur are oxidised and driven off as arsenious and sulphurous acids. The arsenious acid is intercepted in chambers constructed in the course of the flue through which all the products of

District No. 6—*continued.*

combustion pass between the furnace and the chimney. Some of these flues and chambers are 3,000 feet in length, and their capacity in some cases is more than 60,000 cubic feet. These flues and depositing chambers are opened from time to time, and the arsenical deposit, known as *arsenic soot*, is removed. It is, however, discoloured by the dust and smoke of the fire, and must consequently be re-sublimed in a refining furnace where only coke or anthracite is burnt, to be again collected in a series of settling chambers and long flues. Any arsenic which is not collected in the chambers and flues will escape through the chimney, and become scattered on the adjacent herbage, and thus poison the unfortunate cattle that eat it.

On my first visits to the arsenic works I found the escape of arsenious acid was very high from some of the chimneys, as the following figures will show:—

Arsenious Acid in Air of Chimney.	Arsenious Acid in Air of Chimney.
Grains per Cubic Foot.	Grains per Cubic Foot.
0·39	1·22
3·00	0·41
0·40	0·25
7·40	0·30
0·50	0·22
1·45	1·50
0·41	0·50

The amount of arsenic escaping depends not only on the temperature of the settling flues and chambers, but also on the condition of the roasting furnace and the chimney draught. Many of the works with excessively long flues showed that very small quantities of arsenic were escaping into the air, and at one or two chimneys it was found that only about fifteen-hundredths of a grain of arsenious acid per cubic foot was passing into the atmosphere.

Several manufacturers have made a praiseworthy effort to prevent the escape of arsenic from their works either by the erection of condensers or by the increase of additional settling chambers and flues.

The following series of Tables show the amount of arsenious acid escaping at the end of the long flue or after the final condenser:—

Arsenic Works.—Escapes from Refinery Furnaces.

Register Number of Work.	Arsenious Acid per Cubic Foot Escaping.	Total Acidity of Gases given as SO_3 per Cubic Foot.
No.	Grains.	Grains.
1924	0·041	0·33
1928	0·054	1·38
1933	0·123	2·13
1942	0·091	1·31
1946	0·215	1·30
1948	0·043	3·10
1954	0·075	0·25
1955	0·035	1·58
1956	0·108	1·50
Average - -	0·087	1·45

District No 6—*continued.*

ARSENIC WORKS.—ESCAPES FROM MECHANICAL CALCINERS.

Register Number of Work.	Arsenious Acid per Cubic Foot Escaping.	Total Acidity of Gases given as SO_3 per Cubic Foot.
No.	Grains.	Grains.
1931	0·015	3·16
1933	0·132	2·13
1938	0·015	2·00
1939	0·020	0·40
1940	0·043	2·00
1945	0·028	1·52
1946	0·500	7·92
1948	0·163	3·10
1950	0·051	1·55
1952	0·063	2·90
1953	0·013	0·25
1956	0·108	1·50
1957	0·017	0·50
1959	0·258	7·50
1971	0·013	0·64
Average - -	0·096	2·47

ARSENIC WORKS—ROASTING FURNACES (OVENS).

Register Number of Work.	Arsenious Acid per Cubic Foot Escaping.	Total Acidity of Gases given as SO_3 per Cubic Foot.
No.	Grains.	Grains.
1924	0·032	2·98
1933	0·123	2·13
1940	0·013	1·20
1941	0·025	0·80
1944	0·050	1·50
1952	0·039	0·95
1953	0·013	0·25
1960	0·063	2·37
1963	0·013	0·30
1964	0·022	0·80
1965	0·009	1·72
1967	0·023	0·39
1973	0·013	0·12
Average - -	0·034	1·20

ARSENIC WORKS.—KILNS.

Register Number of Work.	Arsenious Acid per Cubic Foot Escaping.	Total Acidity of Gases given as SO_3 per Cubic Foot.
No.	Grains.	Grains.
1953	0·086	1·72

District No. 6—*continued.*

The best form of condenser for arsenic works will doubtless be some material for first filtering or arresting the solid particles of arsenious acid, then washing the smoke in a tower in order to remove the excessive acidity. Water does not easily dissolve sulphurous acid, but the extreme acidity can be reduced to a certain extent. If the arsenious acid is not removed by a dry filter then the water may carry it away into the streams, and the danger of this deadly poison will be spread still further. Although water does not easily take hold of the finely divided particles of arsenious acid, still some works have erected wash-towers, but care is now being taken not to permit any of the water impregnated with the arsenious acid to flow into the streams.

The following Table shows the amount of arsenious acid and acidity removed from the smoke in this form of condenser :—

Register Number of Work.	Arsenious Acid before Washing Apparatus per Cubic Foot.	Arsenious Acid after Washing Apparatus per Cubic Foot.	Amount of Arsenious Acid removed.	Total Acidity of Gases before Washing Apparatus as SO_3 per Cubic Foot.	Total Acidity of Gases after Washing Apparatus as SO_3 per Cubic Foot.	Amount of Acid Condensed compared with that Produced.
No.	Grains.	Grains.	Per cent.	Grains.	Grains.	Per cent.
1924 (1)	7·400	0·0406	99·45	1·30	0·33	74·62
1924 (2)	0·500	0·0314	99·95	7·92	2·98	62·38
1939	0·100	0·0200	80·00	1·20	0·40	66·67
1946	3·000	0·5000	83·34	11·96	7·92	33·78
1954 (1)	0·335	0·0750	80·52	1·50	0·25	83·34
1954 (2)	0·508	0·0360	93·51	2·40	1·72	28·32
1965	0·172	0.0090	94·71	7·10	1·72	75·78
1973	0·039	0·0130	66·67	0·20	0·12	40·00
Average -	1·513	0·0968	93·61	4·19	1·93	53·94

Dry filters or condensers have been erected at several works, and these have been found effective in arresting the solid matter. As water is not used for carrying away the arsenic present in the smoke, there is therefore no danger of poisoning the streams; the condenser has also the advantages of being cheap in construction, retaining the escaping arsenic instead of wasting it, and costing nothing for pumping. The Chief Inspector fully described such a form of dry filter in his Annual Report on "Alkali, &c., Works" for 1892. It is, in fact, a large chamber filled with broom, furze, or thorn through which the smoke rises by the draught of the chimney. The chief difficulty in using this form of filter is the rapid disintegration of the material used for packing, and the trouble of replacing it so frequently.

I have examined some of the deposit found in the arsenic filters, with the result that the minimum quantity of arsenious acid was 68·21 per cent., and the maximum was 76·14 per cent. The rest of the deposit appeared to consist of silica, alumina, ferric oxide, selenium, and bits of brush-wood.

District No. 6—*continued.*

The following table gives the result of tests made at condensers filled with brush-wood* :—

Register Number of Work.	Arsenious Acid per Cubic Foot before Condenser.	Arsenious Acid per Cubic Foot after the Condenser.	Amount of Arsenious Acid removed.	Capacity of Condenser in Cubic Feet.
No.	Grains.	Grains.	Per cent.	Cub. ft.
1924	0·300	0·153	49·00	648
1928	0·152	0·054	64·48	245
1940	0·056	0·013	76·79	720
1946	1·218	0·279	77·92	1,400
1948	0·410	0·163	60·25	1,872
1971	0·030	0·013	56·67	2,000
Average	0·361	0·112	68·95	—

Efforts have been and are still being made to find some material to act as a filter which is fairly cheap and at the same time does not disintegrate like brushwood. Cocoa-nut fibre was tried as a vehicle for filtering out the arsenic present in the smoke. It arrested 67·67 per cent. of the arsenious acid, but unfortunately did not last much longer than brushwood.

Tar Works.

There are 11 works registered for the distillation of gas tar, and efforts are being directed towards the prevention of nuisance arising from the uncondensed hydrocarbons and sulphuretted hydrogen escaping from the ends of the tar-still worms, and from the irritating vapours given off from the hot pitch as it runs from the stills. With regard to the gases escaping from the ends of the tar-still worms, arrangements are being made for tapping the outlet by a bend in the pipe, or by bending it down into a small tank, from the upper portion of which the gas can be led away, while the liquid can be drawn off at a lower level. The gas is then burnt in a fire after passing through a water seal, or is absorbed in a bed of oxide of iron, as is done in sulphate of ammonia manufacture, care being taken either to have a water seal or to diminish the pipe near the oxide of iron purifier to guard against the occasional accident of the oxide of iron catching fire. Nos. 1889, 1927, and 1935, are arranging to burn the gases, while Nos. 1775, 1798, and 1932 are absorbing in oxide of iron purifiers. Nos. 1958, 1968, and 1970 have been idle nearly all the year, and Nos. 1785 and 1934 have not yet decided which method they will adopt.

All the works are supplied with pitch-coolers either of iron or of brick-work, and in these the pitch is allowed to cool before running into the bay or pit. If the pitch is run out too hot hydrocarbon vapours are given off, and these irritating fumes are carried some distance.

Zinc Works.

There are seven works registered in this district where zinc is extracted from the ore. The ores which are usually treated are calamine, the carbonate of zinc, and blende, the sulphide of zinc. These are first calcined, and in the case of blende, sulphurous acid is given off during the operation. The oxide of zinc which is thus formed is then intimately mixed with an equal weight of powdered non-caking coal, and placed in

* Thorn disintegrates less than common broom or furze, and consequently requires replacing not quite so frequently.

District No. 6—*continued.*

fireclay retorts. The furnace employed is a brick arched chamber, open in front. In some furnaces 46 retorts are arranged in eight parallel rows, but some have about double this number. In all cases the retorts are so placed as to allow the heat from the fire to play around them. Each retort has in front a fireclay nozzle, on which fits a sheet-iron cone having a small opening at the end. The fire-place stretches across the width of the furnace under the lowest row of retorts. When the heat of the retorts is sufficiently high the oxide of zinc is reduced, and the metallic zinc volatilised. As soon as the zinc vapour begins to escape, the flame becomes opaque and white in colour. When this is noticed the sheet-iron cone is put on in which the zinc oxide collects. As soon as the bellied portion of the fireclay nozzle contains a sufficient quantity of zinc it is removed. This operation of emptying the zinc is repeated at intervals until the distillation is complete. The zinc is finally cast into oblong plates known as spelter. During the smelting operation a white cloud of finely divided oxide of zinc floats away in the air. Efforts are being directed to arrest this uncondensed portion of the metallic vapours. Messrs. Ruck and Neale took out a patent* wherein they say:—"A considerable percentage of zinc is lost during the smelting "process, most of which issues from the pipes or mouths of the retorts "as fumes or oxide of zinc, and not only is lost, but the fumes are "disagreeable and unhealthy to the workmen. Our invention is applicable "to any kind of smelting furnace, and it consists in collecting the "fumes and subsequently condensing them. For this purpose we "provide the front of the furnace with one or more hoods, the front of "which may be hinged to the upper part of the furnace. The fumes as "they issue from the pipes of the retorts are drawn by the action of a "blast, preferably steam, through a pipe connected with a hood into "one or more tanks or other condensing apparatus, where the zinc oxide "will be deposited. If, however, it is found that any zinc oxide passes "through the tank or other condensing apparatus without being pre-"cipitated, we may arrange another steam jet at the outlet, so as to "force the fumes and gases escaping into another tank containing water "before being liberated, and by this means the greater part of the oxide "now lost will be recovered."

A determined and we trust a successful effort is being made at No. 1951 to overcome the difficulty of arresting the impalpable cloud of oxide of zinc. The adoption of a gas furnace with a series of doors enclosing the nozzles of the retorts and draughted by ventilating shafts and flues to a tall chimney, leads us to believe that the difficulty which has so long taxed the resources of the zinc smelter will now be overcome. When all the furnaces at No. 1951 are constructed on this method, we trust that the works and neighbourhood will no longer be shrouded in the dense white cloud which at present too frequently obscures them.

A series of experiments for condensing the fumes with hoods and ventilating shafts were commenced at No. 1937; but for some reason they were discontinued. The owners, however, of No. 1922 have conferred a great boon upon their workmen by draughting all the fumes and gases escaping from the blende calciners through a long overhead flue to a tall chimney. Several of the workmen inform me that since this has been done they no longer suffer any inconvenience from the irritating vapours of sulphurous acid, which formerly blew about the works from the low calciner chimneys.

ALFRED C. FRYER.

17th January 1894.

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* No. 16,891, A.D. 1892.

District No. 7.—South-Eastern Counties.

F. Napier Sutton, Esq., F.I.C., *Inspector*.

The past year brought with it an increase in the number of works registered, and a considerable increase in the number of manufacturing processes coming under inspection. The Act of 1892 to amend the Alkali, &c. Works Regulation Act of 1881 is responsible for this, and some of the new manufacturing processes brought within its scope have required a good deal of investigation and study. A considerable amount of time has therefore been devoted to these new processes, and a large number of visits were made early in the year to works which were reported as being likely to require registration. This increase of work has necessarily effected a falling off in the number of visits paid to the older registered works; but in the case of the more important works from which the escape of acid gases is limited by the Act, special endeavour has been made to visit each at least monthly, the actual number of visits averaging 11·7 per work.

I have again during the year had the assistance of Mr. E. M. Fletcher in supervising the works in the three southern counties of the district; and I also have visited some of them from time to time as occasion has required.

The total number of visits paid to works in the district during the year was 958, of which 261 were made by Mr. Fletcher, and 697 by myself; the total number of analytical tests made of gases escaping from chimneys and flues amounted to 595, of which number 93 were made by Mr. Fletcher.

The number of registered works under inspection during the year was 210, and the following table shows their distribution over the district:—

Counties.	Alkali Works.	Sulphuric Acid Works.	Chemical Manure Works.	Nitric Acid Works.	Sulphate of Ammonia Works.	Cement Works.	Carbon Bi-sulphide Works.	Venetian Red Works.	Tar Works.	Total Works in each County.
Bedfordshire	—	—	—	—	1	1	—	—	—	2
Buckinghamshire	—	—	—	—	1	—	—	—	—	1
Cambridgeshire	—	1	4	—	1	—	—	—	—	6
Essex	6	8	6	2	8	7	1	1	—	39
Hampshire	—	—	—	—	2	1	—	—	—	3
Hertfordshire	—	—	—	—	7	—	—	—	—	7
Kent	—	3	2	1	18	42	—	—	3	69
Middlesex	3	4	4	4	10	1	—	1	3	30
Norfolk	—	4	8	—	3	—	—	—	—	15
Suffolk	—	4	2	—	2	1	—	—	—	9
Surrey	1	—	3	4	13	—	—	—	—	21
Sussex	—	1	—	—	5	1	—	—	1	8
Totals	10	25	29	11	71	54	1	2	7	210

District No. 7—*continued.*

The separate manufacturing processes under supervision in the works amounted to 280, and were as follows:—

3 alkali.
9 hydrochloric acid (cylinder).
28 sulphuric acid.
47 chemical manure.
82 sulphate of ammonia.
2 gas liquor.
22 nitric acid.
2 chlorine.
6 sulphur recovery.
3 antimony sulphide.
2 bi-sulphide of carbon.
2 Venetian red.
18 tar distillation.
54 cement.

This shows an aggregate increase of six in the number of registered works, and 24 in the number of manufacturing processes under inspection.

Six works ceased to register, and have been closed, viz., one sulphuric acid, two chemical manure, and three cement works; against this, two new sulphate of ammonia works have sought registration.

The actual number of new works added to the district by the increased scope of the Act amounts to 10, and the separate manufacturing processes under inspection has been increased by 31.

There has again fortunately been no necessity to prosecute any work for offences against the Act during the past year.

Alkali Works.

Three works are this year included under this definition (cylinder works excluded), and the table given below includes the average tests obtained from each. The conduct and maintenance of the two older works (Nos. 2256 and 2248) has been entirely satisfactory throughout the year, and no excessive escapes of HCl in the chimney gases have been observed. There has been no material alteration in the decomposing and condensing plant at either work, but these have in each case been maintained in a thoroughly sound and efficient condition.

In the previous year's report mention was made of a small salt-cake plant having been started at work No. 2105, and a description was there given of the plant and of the difficulties which had been experienced, both with the furnace and the condensers. These troubles continued to be encountered in the present year, and the plant had to be repeatedly stopped for repairs and further alterations; improvements were also introduced into the condensing plant. The first six months' work was very irregular, and excessive chimney tests were frequently obtained; but a distinct improvement was noticeable in the second half of the year, and although the tests were still high, they appeared to be more uniform and satisfactory. In consideration of the difficulties which must be encountered in starting any new process without previous experience, the first half-year's work was treated as experimental, and the tests then obtained are not used for the purpose of calculating the average escape. The proprietors of the work have, however, been told that similar licence cannot be allowed in future, and that any excessive escape may necessitate the infliction of the penalties prescribed by the Act.

The average chimney escape for the year is precisely similar in amount to that for the year previous, viz., 0·110 grain HCl per cubic foot.

The average escape of acid, compared with that produced by the decomposition of salt in the furnaces, is 2·292 per cent., which shows an improvement on the figures obtained in 1892, when the escape was 2·385 per cent.

District No. 7—*continued.*

TABLE showing the AVERAGE TESTS of CHIMNEYS connected with the SALT-CAKE PROCESS.

Register Number of Work.	Per-centage Escape of HCl.	Grains of HC per Cubic Foot in Chimney Gases.				Average Total Acidity of Chimney Gases, calculated as Grains of SO_3 per Cubic Foot.	
		Maximum.	Minimum.	Average for 1893.	Average for 1892.	1893.	1892.
2256	3·693	0·11	0·05	0·073	0·104	0·89	1·21
2248	1·182	0·15	0·06	0·110	0·116	0·45	0·38
2105	2·003	0·27	0·06	0·150	—	0·51	—
	2·292	Averages - -		0·111	0·110	0·61	0·79

HYDROCHLORIC ACID (CYLINDER) WORKS.

There are nine works at which salt is decomposed for HCl manufacture on a small scale. The plant employed consists either of a pot or pots connected with Woulff's receivers, or of a small leaden still heated by a steam jacket, from which a pure acid is evolved, and which is absorbed direct in distilled water contained in a glass vessel placed in a refrigerator. In either case the absorption of acid is very complete, and I have invariably found the apparatus carefully worked, and free from any escape.

The total quantity of salt decomposed in the district by all classes of works amounted during the year to 5,902 tons, which shows a decrease of over 1,000 tons compared with the quantity decomposed in 1892.

SULPHURIC ACID WORKS.

Twenty-eight works produce sulphuric acid in this district, and for this purpose 57 separate sets of plant are employed. As a rule, each set of chambers is draughted separately; but in a few cases this is not practicable, and from two to four sets are draughted through a single connecting trunk to the chimney. This system has the disadvantage of not having each set under immediate observation and control, and must sometimes involve loss to the manufacturer.

The 28 works have a total of 44 exits, from which 417 tests have been made, giving an average of 9·5 tests per exit. The four-grain limit has been exceeded at eight works, with a total of 16 such infractions, or a percentage of infraction equal to 3·8 per cent. on the total number of tests taken. In 1892, 10 works of the then existing 30 exceeded the limit, with a total of 20 excessive tests, equivalent to 4·79 per cent.

The year's work, therefore, shows a considerable improvement on that of last year, both as regards the number of offending works and the number of excessive escapes. This is the more creditable, when the exceptionally continuous and excessive heat experienced during last summer is taken into consideration. The larger portion of the high tests obtained were directly produced by the unusual atmospheric conditions existing.

The average escape of acid from the sulphuric acid chambers for the past year was 1·25 grain (calculated as sulphuric anhydride) per cubic foot of exit gases. This figure is practically the same as the average escape for 1892, which then amounted to 1·27 grain SO_3 per cubic foot.

The general conduct of the works has been very satisfactory, and increased care and attention has, in many cases, been observable. This was especially so in the case of works No. 2151, 2155, and 2179.

District No. 7—*continued.*

The work that has given least satisfaction is No. 2172, and here several excessive escapes were observed at different periods throughout the year. Two of these reached very high figures, and other tests approached the limit very closely, and special representations had to be made to the firm in question. The same work last year had the unenviable distinction of having the highest average escape, and it is again similarly distinguished. There can be little doubt that the crude and unscientific methods employed for ascertaining the condition of the chamber process is to a great extent responsible for the unsatisfactory working of the chambers. In excuse, it may be stated that the source of sulphur is partly derived from spent oxide and sulphuretted hydrogen.

Another work, No. 2200, has given some anxiety during the year. Here three excessive tests were observed, none very high or of prolonged duration, but sufficient care does not at times appear to be exercised, and the average escapes for the year are much too high.

Another unsatisfactory point in connexion with this work is the excessive low-level escapes which occur from the pyrites burners. These are old and of ancient design, and the draught is now very defective. I am glad to say some of the kilns are having attention, and one set is being entirely rebuilt; the remainder will be altered as opportunity occurs.

Complaint of excessive local escapes from burners and chambers had to be made to the proprietors of work No. 2291. Derogatory remarks were made with respect to this work in the last report, and although extensive repairs were then reported the plant still required further improvement. The cause of the recent complaint was defective doors to the small burners and faulty chamber curtains, with too low a stock of acid.

An excellent year's record has been obtained at work No. 2179. Here spent oxide is used as a source of sulphur, and it is greatly to the credit of those responsible to be able to show so low an average exit as 0·95 grain when working this difficult material without the aid of towers.

Another very satisfactory record is that shown by work No. 2152. The proprietors of this work were fined in 1888 for a series of excessive escapes. Since that date the work's management has undergone a change, and the plant and general care exercised has been greatly improved, and is now entirely satisfactory.

Those responsible for the working of the extensive acid plant at work No. 2146 are again deserving of high praise for the excellent record of tests that have been obtained. It has been mentioned in previous reports that the chief source of sulphur for acid making is derived from spent oxide and sulphuretted hydrogen. Four of the acid sets depend exclusively on these materials, and constant care and watchfulness is necessary. Fifty-four tests were made during the year of the acid gases escaping from the six sets of chambers employed, and only one excessive escape was observed, which was of short duration only. A new sulphuric acid plant on the Delplace system was completed, and started work early in July. It has been erected in a very substantial manner throughout, and is capable of producing a very large quantity of acid. Difficulty was experienced shortly after starting work from defects in the packing of the Glover tower. To remedy this, the plant was stopped for some weeks, but has since been working continuously. Sufficient time has not yet elapsed to allow a definite opinion to be expressed on the superior merits claimed for this system over the older one.

The general maintenance of plant throughout the district has been satisfactory, and the necessary renewals to plant, such as renewing and patching defective chambers, rebuilding kilns, repacking towers and scrubbers, &c. have been made where required, but do not necessitate detailed description. It may be mentioned, however, that at work No. 2205 an entirely new and enlarged set of three chambers has replaced a set of very old ones. The new chambers are constructed on the most approved model, and have a total capacity of 124,500 cubic feet.

District No. 7—*continued.*

TABLE showing the AVERAGE ESCAPES from RECTIFYING APPARATUS.

Register Number of Work.	Total Acidity as SO_3 per Cubic Foot.	Remarks. Tests taken after Acid had been boiling at least three hours.
2108	0·50	From 20 glass retorts, waste gases pass through coke scrubber.
2248	0·35	From 50 glass retorts, waste gases pass through coke scrubber.
2161	0·15	From pans and platinum still, test taken at end of very long flue before entering chimney.
2179	2·70	From 30 glass retorts, waste gases pass through coke scrubber.
Average	0·92	Average escape for 1892 = 0·99 grain.

TABLE showing the AVERAGE TOTAL ACIDITY in the EXIT GASES from SULPHURIC ACID CHAMBERS.

Register Number of Work.	No. of Exit.	Total Acidity in One Cubic Foot of Exit Gases. Grains of SO_3.	Source of Sulphur.	Remarks.	Average Escape for previous year, 1892.
2291	—	1·40	Pyrites smalls	The last two years' work has been less satisfactory than formerly.	1·53
2199	1	1·70	Pyrites	The plant is under good management and every care is used, but these figures should be lower.	1·92
	2	1·86	Pyrites smalls	- - - - -	1·82
2108	1	1·31	Brimstone	The year's tests have been entirely satisfactory.	1·40
	2	1·44	„	- - - - - -	1·13
2231	—	1·85	Pyrites	Working only seven months. Record satisfactory.	1·99
2146	1	0·72	Pyrites, Spent Oxide, and Sulphuretted Hydrogen	The year's work has again been remarkably good, and of 53 tests taken only one exceeded the Act limit; this was of very brief duration. No. 6 set (Delplace's system) started work in July.	0·52
	2	0·73			1·30
	3	0·56			0·72
	4	0·60			0·37
	5	1·14			1·13
	6	1·11			—
2248	1	1·08	Pyrites	- - - - -	0·91
	2	0·88	„	- - - - - -	1·00
2121	—	1·02	„	Working only five months of year	0·96
2136	—	1·41	Brimstone	One chamber only, working about five months in the year.	1·33
2256	1	0·97	Pyrites	Includes exit gases from three sets of chambers. Improvement shown.	1·44
	2	1·67	„	Includes exit gases from two sets of chambers.	1·67
2129	—	1·44	„	- - - - -	1·47
2202	—	2·18	„	This figure should be lower. Chamber space rather small.	1·82
2167	—	1·45	„	Chambers formerly worked as two sets, now worked in one series.	0·86
2151	—	1·25	„	Includes exit gases from two sets of chambers. Improvement shown here.	1·96

District No. 7—*continued.*

Register Number of Work.	No. of Exit.	Total Acidity in One Cubic Foot of Exit Gases. Grains of SO_3.	Source of Sulphur.	Remarks.	Average Escape for previous year, 1892.
2152	—	0·73	Pyrites - - -	The year's work has again been excellent.	0·78
2155	—	0·62	„ - -	An excellent average figure, and record entirely satisfactory.	1·10
2156	—	1·10	„ - - -	- - - - -	1·01
2161	1	1·25	„ - -	Some trouble was experienced with both sets during the hot weather.	1·41
	2	1·33	„ - - -	- - - - -	0·59
2172	—	2·81	Pyrites, Spent Oxide, and H_2S.	The working here has again been unsatisfactory at times.	2·91
2173	—	1·32	Brimstone - -	- - - - - -	1·38
2179	—	0·95	Spent Oxide and Brimstone.	Plant carefully worked and the record has been excellent.	1·03
2190	—	0·71	Pyrites - -	Includes exit gases from four sets of chambers. Record very satisfactory.	1·04
2198	1	0·96	„ - -	The record of tests has been entirely satisfactory and shows improvement.	1·03
	2	1·14	„ - -		1·93
	3	0·87	„ - - -		1·43
2211	—	—	„ - -	This plant has been pulled down and the work no longer exists.	0·47
2200	1	1·78	„ - -	The year's work has not been entirely satisfactory and the average escapes for sets 1 and 4 are too high.	0·91
		1·21	„ - - -		1·58
	3	1·18	„ - -		1·80
	4	1·79	„ - - -		0·93
2205	1	0·74	Pyrites - - -	The two sets are now draughted separately. The average escapes from No. 2 set is too high.	0·96
	2	2·15	Spent Oxides -		
2209	—	1·03	Pyrites - - -	Seven chambers worked here in one series.	1·26
2263	—	0·95	„ - - -	The work here has been very satisfactory.	1·18
2155	—	1·21	Pyrites and H_2S -	The year's record shows improvement.	1·50
2242	—	1·49	Pyrites and H_2S -	Temporary trouble was experienced during the early hot weather.	1·33
		1·25	Average for 1893.	Average for 1892 - -	1·27

Chemical Manure Works.

There is not much change to report this year in the means employed at the different works for condensing the acid compounds evolved in the mixing of mineral phosphates with sulphuric acid. It was reported last year that all works requiring condensing appliances were already provided in this respect, and that these were, as a rule, adequate. In some few cases additional improvements have been introduced, and in every instance the existing plant has been maintained in a sound and satisfactory condition.

The condensation of the volatile fluorine compounds shows little change. The year's average escape for the district is 0·27 grain acidity (calculated as sulphuric anhydride) per cubic foot of gases leaving the condensers, and the amount condensed compared with that evolved is 98·63 per cent. Last year these figures were respectively 0·25 grain per cubic foot and 98·59 per cent. There is, therefore, a very slight increase in the actual escape, and a slight improvement in the percentage figure. Both figures agree so closely with those of the previous year, that it would appear the quantity of acid gases evolved has closely approached a

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minimum, and that little further improvement can be expected from the existing appliances.

The table of figures which follows shows the average of all the tests which have been obtained during the year, and it will be observed that as a rule the lowest escapes of acid from the condenser exits are obtained in those cases where a fan is employed as a means of draught, and conversely the highest escapes occur when a more moderate means of draught is employed, such as a steam jet or chimney draught. It will further be observed that the percentage condensation often varies inversely as the actual escape. This points clearly to the fact that the amount of acid in the exit gases is not a true indication of the amount of condensation taking place, unless the speed of the gases is taken into the calculation. It also demonstrates that the best results are obtained by treating the gases in a concentrated form at a low velocity. The decomposing and condensing effect of the steam when such is used in the form of a jet is also a factor to be taken into consideration.

This view has been expressed in former reports, and the marked improvement in the condensation obtained last year, and again this, at work No. 2198 is entirely due to the fact that excessive dilution of the gases has been prevented and the speed of the gases diminished when passing through the washers, for the condensing appliances remain precisely as they were three years ago when the condensation amounted to only 94·45 per cent.

The least satisfactory results have been obtained at work No. 2172, where the plant is old and badly designed. The condensation obtained only amounts to 96·37 per cent., more than 2 per cent. lower than the average for the district. Until last year this work had not been subject to very frequent or severe inspection. It is under consideration to give up the manufacture of manures at this work.

The only notable improvements that have been made to plant during the year are as follows:—At work No. 2263 the condensers have been re-constructed and modern improvements introduced. At work No. 2151 both dens have been entirely rebuilt. They are now constructed of massive brickwork with a brick arch roof supporting the mixing floor. A "depositing chamber" of 840 cubic feet capacity has been added to the condensing plant with good result. This plant is now exceedingly efficient. The extensive dens at work No. 2198 have also been entirely reconstructed. These were formerly of very large area and constructed of wood. During last summer the woodwork gave constant trouble by reason of its decay, and the greatest difficulty was experienced in keeping the dens even reasonably sound. The woodwork was constantly breaking away and gave rise to a strong protest from me as to the local escapes of strong acid vapours which were of grave and frequent occurrence. These dens have now been replaced by others of smaller area built of brickwork substantially roofed with wood, and the doors fitted with iron socketted frames. The dens are now perfectly tight, and this result has materially assisted condensation by preventing the great dilution of the gases which formerly occurred.

The 47 works at which the manufacture of chemical manure is carried on may be divided into three classes: (i.) The larger and more important works, at which sulphuric acid is produced for the manufacture of the chemical manures, and which are usually well appointed and under scientific management; (ii.) Works at which chemical manures are produced in fairly large quantities but for which the acid required is bought; and (iii.) very small and unimportant works which are scarcely entitled to the name "chemical" works, and where small quantities of acid are used in conjunction with some mineral phosphate and a larger proportion of organic refuse, such as bones, hoofs, shoddy, and animal and fish refuse. Eighteen works belong to the first class mentioned, and the remaining 29 works are almost equally divided among the other two classes. The plant and methods employed at the smallest works are generally of the most crude description, and except when these are situated in an isolated position give rise to some nuisance. The close

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competition which has existed in the manure trade for several years coupled with the great depression in agriculture is gradually crushing these small works out of existence, and not a year passes but one or two of these cease to exist. The new and stringent regulations enforced by the Fertilizers and Feeding Stuffs Act, which comes into operation on 1st January 1894, must have a marked effect on this class of work, and will doubtless cause many to be closed that might otherwise have lingered in existence some few years longer.

TABLE SHOWING the AVERAGE AMOUNT of ACIDITY ESCAPING from the CONDENSERS in MANURE WORKS.

Register Number of Work.	Total Acidity in 1 Cubic Foot of Gases in terms of SO_3.		Per-centage of Acid Vapour condensed compared with that evolved.	Remarks.	Average Escape from Condenser Exits for 1892.	Average Per-centage Condensation for 1892.
	Den and Mixer Gases.	Condenser Exit.				
2199	25·10	0·55	97·81	120 tons of superphosphate frequently dissolved here daily. Excellent draught obtained by steam jet only.	0·30	97·59
2231	20·83	0·50	97·40	Fairly efficient. Connected with boiler fire.	0·55	97·56
2129	—	0·15	—	Satisfactory. Fan used; steam admitted to assist condensation.	0·20	—
2202	24·30	0·30	98·77	Satisfactory. Steam jet.	0·20	98·82
2167	48·75	0·20	99·59	Very satisfactory. Steam jets used at two points.	0·15	99·10
2151	13·20	0·30	97·73	Further improvements have been made. Very efficient. Steam jet.	0·40	97·25
2152	4·25	0·05	98·83	This plant used exclusively for compound manures. Chimney draught.	—	—
2152	9·20	0·05	99·45	This plant used for superphosphates. Fan used.	0·25	97·78
2161	24·75	0·50	97·98	Revolving washer in use here. Draughted by steam jet and chimney.	—	—
2156	3·75	Trace	99·90	One test only obtainable. Mixing "compound." Chimney draught.	0·15	98·78
2172	8·27	0·30	96·37	Improvement necessary. Fan used.	0·13	98·56
2190	28·00	0·40	98·57	Satisfactory. Fan used.	0·40	98·67
2190	31·85	0·40	98·75	Satisfactory. Fan used.	0·35	98·90
2198	37·50	0·20	99·46	Further improvement has been made. Fan.	0·17	98·66
2200	16·90	0·15	99·12	Satisfactory. Fan.	0·15	99·39
2209	52·50	0·30	99·41	Very satisfactory. Depositing chamber in use. Steam jet and chimney draught.	0·20	98·92
2263	31·60	0·25	99·20	Satisfactory. Chimney draught.	0·12	99·27
2242	19·25	0·15	99·22	Very satisfactory. Steam jet.	0·10	99·63
2201	7·25	0·15	97·93	Satisfactory. Depositing chamber in use. Steam jet.	0·20	98·48
2124	31·90	0·35	98·91	Condensation shows improvement. Steam jet.	0·55	97·43
2134	—	—	—	No opportunity to test has occurred. But little mixing has been done. Fan.	Trace.	99·90
2147	31·85	0·45	98·59	Satisfactory. Steam jet.	0·40	98·55
2260	26·60	0·40	98·50	A larger proportion of superphosphates are being made here. Steam jet.	0·40	98·23
2211	—	—	—	Works closed and plant dismantled in 1892.	0·25	98·98
Averages		0·27	98·63	Averages for 1892 =	0·25	98·59

NOTE.—The above figures represent the average quantity of acid evolved during the mixing of superphosphates, or the strongest mixing of mineral phosphates made at the works.

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Gas Liquor and Sulphate of Ammonia Works.

Eighty-two works have been registered during the year for the manufacture of ammoniacal compounds derived from gas liquor. Sulphate of ammonia is produced in every case, but in a few instances carbonate and nitrate of ammonia, liquid (refined) and anhydrous ammonia are also manufactured.

The total quantity of ammoniacal compounds produced during the year amounts to 39,400 tons, calculated as sulphate of ammonia. This shows a decrease of 580 tons in the quantity produced in 1892. Hitherto a large annual increase has always been shown, and the decrease this year is chiefly due to the exceptional freedom from fog in London during the autumn with consequent diminution in the quantity of coal carbonised; the growing custom of carburetting the gas by other means than cannel coal is also responsible to some extent.

Two new works have been registered during the year, both of these are gas works, and the apparatus erected for the manufacture of sulphate are of the most approved design; the sulphuretted hydrogen in each case is absorbed in oxide of iron purifiers.

There is little change to report in the methods adopted in the different works for the disposal of the sulphuretted hydrogen evolved during the distillation of the gas liquor. The greater portion of this gas, amounting to 60·8 per cent. of the whole, is utilised for sulphuric acid manufacture, by combustion in special furnaces or in the pyrites or oxide kilns connected with the acid chambers, 11·6 per cent. is treated by the Claus process for the recovery of the sulphur as brimstone, 9·5 per cent. is treated by absorption in hydrated oxide of iron, and the remaining 18 per cent. is burnt in special kilns or under the boiler fires, and the resulting sulphurous acid escapes from the chimneys as such.

I had hoped this year to have been able to report that the utilisation of sulphuretted hydrogen for sulphuric acid manufacture had been adopted in the case of two additional works where this means of disposal exists. The proprietors of one of these works have abandoned the idea for the present at least, but in the other case this desirable course is still under consideration. At present this method is in use at four works and is there carried out with the greatest success. Unfortunately there are drawbacks to the system which in some cases is deterrent to its adoption. The saturator gases contain a very large amount (60 per cent. or so) of carbon di-oxide, and the mixture requires an excess of air to thoroughly oxidise the H_2S, so that the resulting sulphurous acid is largely diluted with carbon di-oxide and nitrogen, and these occupy valuable chamber space. The consumption of nitre for the further oxidation of the SO_2 with SO_3 is more extravagant than when the sulphur is derived from brimstone or pyrites. Therefore, with a limited chamber space, the adoption of this system is difficult and costly.

The treatment of the sulphuretted hydrogen by the Claus sulphur recovery process has been in use at five works during the year, and the adoption of this system is likely to extend. Three additional Claus plants have already been built. One of these has been erected at the works of a large suburban gas company. Here an Abbott's intermittent sulphate of ammonia plant was formerly in use, but this has been replaced by one of Schwab's continuous stills; the foul gases were formerly burnt in the retort house flue. These alterations are now complete, and the sulphur recovery process will be put in action early in the new year. The second Claus' plant (in duplicate) has been erected at one of the London Gas Company's works at which the manufacture of sulphate of ammonia is about to be started.

The older established plants have been subject to constant supervision, and tests have frequently been made of the gases leaving the depositing chambers to ascertain if the best working conditions were maintained. Although the desired limited combustion expressed by the reaction $2\,H_2S + O_2 = 2\,H_2O + S_2$ was often found to be fairly attained, yet an

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excess of either SO_2 or H_2S was more frequently observed passing away with the waste gases to be arrested by the limestone tower and oxide purifiers provided for that purpose. The general concensus of opinion now appears to be that better working results are obtained by the use of a slight excess of air rather than the reverse. This involves a slight loss of sulphur, and care has to be taken that no undue amount of acid passes the limestone tower, for that would detrimentally affect the efficiency of the oxide in the purifiers. The chief difficulty experienced in working this process is that of controlling the chemical action taking place in the kiln, and the difficulty of obtaining a complete deposition of sulphur in a reasonable space. It is strange that so many years' experience in the working of this process had led to no improvement in these two important points.

The action of the acid gases on the mortar and brickwork of the depositing chambers is very destructive and necessitates frequent repair. At one work this action has been so violent that it has been necessary to entirely rebuild the chambers. In renewing these, Portland cement has been used in place of mortar, and the walls are now very strongly braced in all directions. The condition of the chambers at another work is very bad and has led to complaints; these will require to be renewed at an early date.

The absorption of the sulphuretted hydrogen by hydrated oxide of iron is in use at 52 of the 82 sulphate of ammonia works. This method of treatment is, therefore, very general with the smaller works. It has already been stated that 9·5 per cent. of the H_2S evolved in the district is disposed of in this manner, and unless the number of works at which this method has been adopted is taken into consideration, the percentage figure may appear misleading.

The chimneys in connexion with the boiler fires or special kilns in those works at which the saturator gases are burnt, have been tested at intervals for the presence of unconsumed sulphuretted hydrogen and for the total acid compounds evolved. The average total acidity of the chimney gases (including acidity due to the sulphur in fuel) is 1·49 grain, SO_3 per cubic foot. In no instance has the presence of H_2S been detected. I regret to say that the treatment of this gas by oxide purification has been discarded at one rather large work, and the combustion method has been adopted in place of it. This is done in a special furnace, carefully and scientifically constructed, and the thorough oxidation of the gases appears to be effected, but it is a retrograde step.

A notable number of improvements have been made to the sulphate of ammonia and auxiliary plants throughout the district during the year. These include substitution of continuous for intermittent stills and additions and improvements to condensing and purifying plant.

I have on two occasions had cause to complain seriously of defective plant, but no complaint from outside of nuisance arising from the manufacture of sulphate of ammonia has been received by me or has come to my knowledge.

Nitric Acid Works.

Nitric acid is produced at 22 works in this district; there has been no change, therefore, in this respect since 1892. Some four or five of the works have a considerable output, but the remainder of the works are for the most part small. There has been no cause to complain of imperfect plant or of carelessness on the part of those in charge, and I have been well satisfied with the general condition of these works.

There is one matter of interest to report in connexion with this subject—a process and apparatus for the production of nitric acid on the continuous system has been invented and patented by Mr. Manning Prentice, of Stowmarket. A small cast-iron rectangular still is used, divided into several compartments (five), but the divisional walls between each do not quite reach to the bottom, while each compartment has an outlet at the top. A fire is placed under the further end of the still and the gases of

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combustion pass under the still bottom and partly round the sides. The maximum heat is, therefore, applied to the last compartment, thus ensuring the decomposition of the last traces of nitrate. The sulphuric acid and nitrate of soda are passed continuously through a small rotary mill or mixer (where the chlorides are decomposed), and the acid and nitrate are delivered into the first compartment of the still. The mixture being rendered fluid by the heat, flows from one compartment to another, yielding the nitric acid. The acid is thus evolved at different points of space, instead of different points of time as in the older method employed. The strongest acid is evolved continuously from the first compartment and the weaker from the later ones. The bisulphate of soda flows continuously through a syphon outlet at the end of the still and can be run into moulds or otherwise disposed of. Nitric acid in varying proportions of different strengths can be obtained by modifying the proportions of acid and nitrate. Equal volumes of 1,500 Sp. Gr. and 1,400 Sp. Gr. can be conveniently produced, and it is stated that the whole of the acid can be produced at the full strength of 1,500 Sp. Gr., and this of a pale straw colour, containing under 1 per cent. of N_2O_4. The production of such acid direct and without subsequent bleaching operations would appear to be a new departure in the manufacture. It is stated that 16 tons of such acid has been produced by the still in four weeks without a pause and without breaking or mending a joint. The advantages claimed for the Prentice process are:—(i.) economy of plant, the cost of cast-iron, masonry for mounting, and condensing plant being reduced to one-fourth of the usual outlay; (ii.) economy of fuel, stated to be from 50 to 70 per cent. acid of 1,500 Sp. Gr., having been produced by 18 per cent. of coal only; (iii.) economy of labour; and (iv.) reduction of wear and tear. This latter point cannot be settled until the plant has been longer in use, but the inventor is of opinion that there are reasons for expecting this item to be much reduced by his system. One point to note is the fact that any sudden rush of gas is impossible by this system, which permits the employment of a very much smaller condensing plant than is necessary with the intermittent process, and further, the evolution of such fumes as are inseparable from the manufacture of this acid is reduced to a minimum. As an adjunct to this system the inventor utilises the hot liquid bisulphate of soda as it runs from the still for making superphosphates, by passing it through a small mixer where it meets a stream of ground phosphate of lime.

Cement Works.

There is nothing new of importance to report in connection with this class of work. The number of works registered during the year for the manufacture of Portland cement is 54, showing a diminution of three on the number registered in 1892. I have no reason to modify the remarks made on pp. 111 and 112 of the Twenty-ninth Annual Report with regard to the smoke nuisance which may and does exist in some instances.

Sulphide of Antimony Works.

The precipitated red sulphide of antimony is largely used in the manufacture of red indiarubber, and it is for this purpose that the bulk of this material is produced. It is also used to a small extent for medicinal purposes. It is made by precipitating the sulphide from an alkaline solution of the sulphide with excess of acid, and during the process large volumes of sulphuretted hydrogen are evolved. It is for the purpose of controlling and dealing with this noxious gas in order to prevent nuisance and danger that the manufacture of this material has been brought under the Alkali Works Act.

The precipitation is usually made in large tubs, which are closed with the exception of a hole left for stirring and for the admission of the acid, which is added gradually. The sulphuretted hydrogen liberated is drawn away through suitable pipes and flues by means of a fan, and is best dealt

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with by absorption in an oxide of iron purifier. The precipitated sulphide is afterwards repeatedly lixiviated with water and afterwards filtered and dried.

The possible sources of nuisance are (i.) escape of sulphuretted hydrogen during precipitation, which may occur from imperfect draught and leaky pipes, and also from non-efficient absorption in the purifier; and (ii.) the effluent liquors and first washings from the precipitated sulphide, which are strongly impregnated with H_2S, and these may cause much trouble if run away into drains or ditches without treatment. The best method for rendering these liquors innoxious is to neutralise with excess of lime and to allow time for settlement in a suitable tank or pit; the effluent liquor will be then without objection.

Three works in this district manufacture this compound. At two of them the quantity produced is considerable, and the method and appliances used are similar. The works have been under observation for some time, and additional means of preventing nuisance have been and are being taken, but it will necessarily be some time before every possible precaution can be adopted. At present a certain amount of nuisance does exist locally, but not to such an extent that complaints are made. Fortunately both works are at present fairly isolated, but as they are situated in suburban districts, which are becoming more populated every year, this isolation will not always exist.

Carbon Di-sulphide Works.

The manufacture of carbon bi-sulphide is carried on at two works in this district. One of these is situated in such an isolated position that there can be little possibility of nuisance occurring, the other is sufficiently isolated from dwelling houses to prevent any complaints if reasonable precautions are observed.

The chief nuisance arising from the manufacture of this dangerous material is due to the formation of sulphuretted hydrogen in the retorts by the interaction of the moisture and hydrocarbons contained in the charcoal with the vapour of sulphur. This occurs in spite of every care taken to use freshly carbonised and dry charcoal. The quantity of sulphuretted hydrogen occurring, as a rule, is not large, but in the case of one of the works it is increased by reason of the use of sulphur recovered from spent oxide of iron by extraction with CS_2. The sulphur thus obtained contains hydrocarbons in the form of tarry matter.

The sulphuretted hydrogen contained in the waste gases passing on from the condensing apparatus may be conveniently dealt with by absorption in oxide of iron or in lime, or by combustion. The presence of air as well as vapour of CS_2 with the H_2S constitutes an element of danger in the disposal of the gases by the latter method; but with proper precautions it can be burnt, and is habitually so treated at one of the works. The necessary conditions for safety is a natural draught (any suction would produce an in-draught of air at the retort when charged), and the distribution of the gas at the outlet through pipes of small area, not greater than half-an-inch diameter. Where treatment by absorption in oxide of iron is preferred, the purifier should contain a series of shelves or trays to carry the oxide, and the gases should be made to circulate freely but intimately over the layers of oxide. The redistillation of the crude carbon bi-sulphide does not give rise to any nuisance.

The waste gases at both works are treated in the manner described above, in one case by combustion and in the other by absortion in an oxide purifier. In each case the existing treatment is temporary and to a certain extent experimental; some modifications and improvements will be introduced when the fittings are altered and made permanent.

Venetian Red Works.

Two works are registered in this district for the manufacture of the red oxide of iron pigment known as Venetian Red, and obtained by roasting

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copperas or protosulphate of iron. One of these works has been established some years, and here the copperas is roasted in kilns, and such acid gases as are evolved pass away with the furnace gases to a common flue and so to the chimney. By a process of manufacture the greater portion of the sulphuric and sulphurous acid gases is retained and the total acidity of the flue gases has never to my knowledge exceeded 4·35 grains (as SO_3) per cubic foot, while the average acidity is only 2·73 grains SO_3 per cubic foot. This amount is, of course, considerably reduced in passing to the chimney, where further dilution takes place; the chimney gases, however, have a distinctly acid appearance.

In the case of the other work mentioned the plant existing hitherto has been of an experimental character only, but permanent plant of similar design is now in course of erection. The proprietor here has not been content to keep in the old groove, but with a view to improve his method of manufacture and at the same time to conform to the requirements of the Act, he has designed a furnace of an entirely new type. The object in view was to obtain economically a product of constant high quality of colour, with complete separation of the acid gases from those of combustion. The experimental plant has yielded most promising results, and the new furnace will be watched with much interest. The acid gases from the experimental plant were treated in a series of three scrubbers, the first two containing scrap iron and the last packed with coke with a layer of limestone at the top. Air was admitted into the scrap-iron towers and the draught was obtained by steam jets supplied to these; a considerable amount of sulphate of iron liquor was obtained and the sulphate afterwards recovered by crystalisation for subsequent convertion with Venetian Red. The acidity of the waste gases was by this means conveniently and usefully recovered and the escape reduced to reasonable limits.

Arsenic Works.

There is one work at which arsenic acid is produced by the action of nitric acid on arsenic oxide. The oxides of nitrogen evolved are re-oxidised into nitric acid by the aid of steam and air and effectually condensed in Woulff's bottles and coke scrubbers.

Tar Distillation Works.

The distillation of tar is carried on at 17 works in this district, and these differ very greatly in manufacturing capacity, condition of plant, and general management. It may be stated that as a rule the type and capacity of the stills employed at the different works are similar; that is to say, the majority of the stills employed are of about 10 tons (2,200 gallons) capacity, and the mode of setting these, the method of firing and means employed for condensing the distillates is much the same in all the works with one or two special exceptions, which are to be mentioned presently.

The smaller works employ one, two, three, or possibly as many as six stills; these works are 12 in number. The remaining five works are of much larger capacity, the largest having as many as 48 stills of 14 tons capacity each.

The exceptions to the ordinary form of stills employed are those used in the different works belonging to one of the largest private firms in the London district. The still is a patent of one of the members of the firm in question and differs from the ordinary pot still in being of a horizontal boiler shape, having a mechanical stirring apparatus running horizontally through it, and in being heated by more than one fire. The capacity of these stills is generally much greater than that of the pot stills, ranging from five thousand gallons to eight and even sixteen thousand. The same firm is now using a *continuous* method for the distillation of tar, and a detailed description of this method and the apparatus employed will be given hereafter.

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Crude tar as produced at the gas works always contains a certain proportion of ammoniacal water mechanically mixed with it. A large part of this work separates out in the tar storage tanks by reason of its lighter gravity and can be pumped or drawn away. The tar actually charged with the tar stills always contains, however, some water, and during the early stages of the distillation it is the sulphide of ammonia contained in it that first gives rise to possible nuisance. During the early stage of the distillation, while the tar is becoming completely dehydrated, a considerable volume of permanent gases, containing sulphuretted hydrogen and some portions of very light naphthas (which are not condensed in the worm) are evolved. The gases given off from the worm end while the first runnings or distillate is obtained are very pungent, and the cessation of these strongly smelling gases is very marked as soon as the light oil begins to run. The gases which are evolved from the worm end during the remainder of the distillation do not contain much sulphuretted hydrogen until the final stage is reached, but meanwhile vapours having a very strong and pungent smell are given off, especially during the running of the creosote oils. This is in a great measure due to naphthalene vapours, which have a very characteristic odour, and in bright weather the crystals of naphthalene or "feather" can be seen floating in the air in the vicinity of the receiver and sparkling in the sun. During this period of the distillation the condensing worm is kept hot to prevent blockage of the worm with naphthalene crystals, and the evolution of vapour is enhanced in consequence. With the cessation of the creosote oil distillate the final distillation process is reached, namely the recovery of the anthracene oil. It is now universally the custom, certainly in all well-appointed works, to inject superheated or dry high pressure steam with the contents of the still at this stage. The maximum temperature of distillation has been reached by this time, and a certain amount of destructive distillation with separation of carbon and permanent gases has been produced by excessive local heating of the viscid still contents, so that the gases and vapours evolved at this point increase in volume and frequently have a very rank and acrid smell. The introduction of steam during the final stage has led to a most beneficial reduction in the amount of destructive distillation taking place, but it still occurs to some extent. In those cases in which steam is not employed, but where the stills are fired up to the end of the process, the vapours given off are very dense and irritating, and contain such bodies as pyrene, chrysene, &c. The condensing worm during the distillation of the anthracene oil is not kept cold, although cooler than during the running of the creosote oil, and if kept too warm there is a danger of anthracene and hydrocarbon vapours escaping, which have a dense yellowish white appearance. In two instances these vapours were observed to escape in considerable volume and to travel some distance, and were the foundation of a complaint by occupiers of neighbouring houses. The escape was due to careless working, and must have resulted in a decreased yield of the most valuable of the tar products.

It is obvious from the above remarks that objectionable permanent gases and strongly smelling vapours are evolved more or less during the whole period of the distillation of tar. Hitherto, as a rule, these gases and vapours have escaped unchecked. Previous to the enforcement of any regulations by the Act, only three out of the 17 works were found to employ means for dealing with these gases, and only in the case of the largest of the works were these found to be at all adequate, and even in that instance further improvements have since been made. The adoption of the necessary means for treating the gases was made very slowly and reluctantly in many cases, and great fear of danger from fire and explosion was expressed at the suggestion to deal with these by burning them. But when it was seen to be safely and easily done by others, this fear was removed, and the combustion method has been adopted generally. The only alternative was the absorption of these gases in oxide of iron. Personally I give preference to the former method, if properly carried

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out, and for the following reasons. The gases do not consist entirely of H_2S, although the disagreeable odour is largely due to the presence of that gas, but other noxious smelling gases are present, such as carbon bi-sulphide, hydro-carbon vapours, benzene, and pyridene, none of which would be decomposed by oxide of iron, but which are easily and completely destroyed by burning.

Two methods can be employed for separating the gaseous compounds from the liquid distillates at the worm end. The latter can be trapped by means of a syphon bend, and the gases conducted away by a pipe fixed on the still side of the syphon, or both gases and distillates can be delivered from the open worm end into the receiving tank for the distillates, and the gases can be drawn away from thence by mechanical means. The former method is not practicable in all cases on account of some tars being so highly charged with naphthaline that difficulty is experienced in keeping the worm clear during the distillation of the creosote oils, and to avoid danger of explosion when such a block occurs, it is necessary to clear the worm end with a rod, which would be impossible where a syphon bend existed, hence either system is adopted, according to individual requirements. Whichever plan is employed it is necessary to use some means of artificial draught, and that employed in the smaller works consists of a steam injector or blower, while in the larger works an exhaust engine is generally employed. The gases thus exhausted contain condensable vapours, namely, steam and hydro-carbon vapours, and it is necessary to condense these in a suitable manner before passing the permanent gases to the fire or purifier. The means employed differ in individual cases according to the necessity for great or small condensing power, but the principle is similar in all. It will not perhaps be necessary to give a detailed description of the plant employed in every case, but an account follows of the appliances used in a few of the works, typical of that used in others, but differing slightly in detail from one another individually.

The smallest tar work in the district (No. 2166) has only one still (10 ton). The proprietor has had a long experience of tar distillation, and he has devised a very simple but effectual means for treating the tar-still gases. The worm end delivers direct into the receiving tank, the lid of which, although easily moveable fits closely. The gases are drawn away from the receiver by means of a small steam ejector, and pass through two perpendicular condensers, similar to a Liebig's condenser, consisting of the 1-inch draught pipe surrounded by a 9-foot length of 5-inch pipe, used as a water jacket. The steam ejector is situated between the two condensers, so that the steam used for draughting is condensed in the second. At the base of each is placed a small iron tank, provided with syphon overflow to catch the condensed liquors. The second of these also acts as a water seal to prevent any danger from firing back. The gases thence pass to the boiler fire, and can at times be seen to burn steadily. The vacuum obtained in the receiver is excellent, and no escape of gas occurs. The connections are 1-inch throughout. This method has been copied by the proprietors of several other small works, who have adopted the apparatus to the two or three stills used by them.

At work No. 2242, where six 10-ton stills are employed, the gases are drawn away from the receiver into a 3-inch main by means of an exhaust engine. The gases are then forced through a washer consisting of a horizontal boiler partly filled with water, thence the gases pass through 70 yards of 2-inch pipe to a large oxide of iron purifier, formerly used for treating the gases from the sulphate of ammonia plant. The method appears to answer well, and at present the oxide shows no signs of exhaustion. The oxide, however, smells strongly of benzene, proving that this vapour is not easily condensed, even after passing through a washer and a very long length of pipe. Absorption of the still gases by oxide of iron has been adopted in one other case, that of work No. 2266, but the draughting means employed here are not yet satisfactory.

District No. 7—*continued.*

One of the most extensive and effectual apparatus erected is employed at work No. 2122, at which 19 tar stills (2,600 gallons capacity) exist. All the receivers here are connected by 2-inch pipes to a 6-inch main running along the whole range of stills. The connecting pipe from each receiver is fitted with a Beck valve, which can be closed when that particular still is not in use. The gases pass by the main to a tubular condenser 6 feet 10 inches × 5 feet 3 inches diameter, containing 125 × 2-inch tubes (water jacketed). From thence they pass through two coke scrubbers each 32 feet high × 3 feet diameter, and from these into a horizontal boiler 12 feet long × 3 feet diameter, used as a washer. A powerful exhaust engine provides the necessary suction, and after passing through this the gases are blown through a second washer of similar size. At this point the gases are divided and distributed through these pipes, each passing to a water seal of 1 foot depth, and from thence the gases pass by 1½ inch pipes to the boiler fires. At this work a considerable amount of ammoniacal liquor (2 oz. to 3 oz. strength) is recovered from the scrubbers along with a certain amount of oil, which is collected, but has not yet been examined. Formerly a considerable amount of nuisance existed in the vicinity of this work, but since the appliances above described have been in use the atmosphere in the vicinity of the stills has entirely altered in character, and is so entirely free from the usual odours accompanying tar distillation, that it is difficult to realise that the stills are actually in operation.

At three other works, all belonging to the same firm, the worm ends are trapped by a syphon bend, and the gases exhausted by engines and passed through washing vessels containing oils. The gases are afterwards passed through a water seal and so to the fires.

In the case of the largest tar work in the district, No. 2146, the 48 stills employed are mounted in sets of eight. The worm ends are all trapped, and the gases are draughted by a powerful steam exhaust through a main pipe running along each set. The length of pipes exposed to the cooling action of the air is so great that no special condensers are necessary, and the gases are draughted to the boiler fires after passing through a water seal. Condensers formerly existed here, but were found unnecessary, and so were removed.

All the tar works with the exception of two are provided with means for treating the gases. These are not all yet satisfactory, and further improvements will be necessary, and will be effected in due course. The two works above referred to are Nos. 2101 and 2185. The former work is situated in the provinces, and the tar is chiefly obtained from the neighbouring gas company's works. This tar is of a highly carbonaceous character, and is acknowledged by other distillers who know its character to be very difficult of distillation. An explosive action frequently occurs in the still, with the result that the still contents are sometimes shot out through the worm. Under these conditions it would be highly dangerous to close the worm end by the usual receiving tank or syphon bend, and the ordinary means used for collecting the gases at the worm end cannot therefore be applied. The proprietor is entirely willing to adopt any safe method that can be suggested, but up to the present no means of overcoming the difficulty have been devised. Doubtless when the cause of the difficulty is better understood some solution of the problem will be found, but meanwhile the work is carried on as hitherto.

The other work, No. 2185, is the most unsatisfactory in the district. It is situated in a thickly-populated district in the south-east of London. Six stills are employed, but the method of working these is very crude and old fashioned, indeed the whole plant is years behind the times. No steam is employed in the distillation, direct fire heat only being used. The condensing tanks are placed on the ground, and the worm ends are below the ground level. The receivers for the distillates consist of wooden tubs sunk several feet below ground, and all pumping is done by hand, and the entire plant is dilapidated and of a makeshift character. Attempts were at first made as a preliminary to trap the worm ends, and

District No. 7—*continued.*

conduct the gases by natural draught to a heap of oxide placed on the ground, but this was a failure. As no stream exists for draughting purposes, the usual methods for treating the gases cannot be applied. I have urged the proprietors most earnestly to do at least something to modernise their plant and processes to bring them somewhere near to modern requirements. I have pointed out the many advantages that would accrue to themselves by the use of steam in the final stages of distillation, besides pointing out the necessity of adopting similiar means in order to comply with the requirements of the Act. At present these representations have led to no such decision, and the owners appear to be quite satisfied to continue as they are, unless pressure is brought to bear upon them. Broadly speaking, the entire work requires to be remodelled and modernised, and any other course would be makeshift and unsatisfactory.

Pitch.

The above remarks have been confined entirely to the process of distillation and the disposal of the gases evolved. It is now necessary to speak of the residue left in the stills, namely pitch; the running-off of this when hot may be a fruitful source of nuisance unless precautions are used.

Since the use of steam has been introduced in the final stages of distillation, the pitch at the end of the process has a much lower temperature than was the case when fire heat was alone used. The temperature of the pitch is, however, still sufficiently high (if not to catch fire spontaneously) to at least cause considerable and grave nuisance if run off immediately into the open. It is universally the custom now to carry the distillation to such an extent that the residue is "hard" pitch, but as there is but a small demand for this material, the pitch, to render it marketable, is softened (generally in the still itself) by pumping into the still a portion of the creosote oils or waste anthracine oils, the quantity of those used depending on whether "medium soft" or "soft" pitch is required. The bulk of the pitch produced in this country is that known as "medium soft." Probably this amounts to as much as 95 per cent. of the total produced in the kingdom, 3 or 4 per cent. would be "soft," and the remaining 1 or 2 per cent. "hard" pitch. The admixture of oils with the pitch for softening purposes necessarily reduces the temperature of the product somewhat, but it is still too high to be run off safely. It is therefore kept in the still some hours and should then be run into another vessel to cool further. When run off from this (the cooler), the pitch should be sufficiently fluid to run out cleanly and completely, but should not give off an undue amount of vapour. It would be difficult and indeed impossible to state any maximum temperature above which pitch should not be allowed to run off into the open, for the reason that pitches differ greatly in the quantity and character of the fumes given off at the same temperature, depending upon whether it is "hard" or "soft," and on whether it has been softened with creosote oil or with less volatile anthracene or "green" oil. From observations I have made it would appear that any pitch (other than "hard") gives off an objectionable amount of vapour at temperatures above 250° F., but pitch (in this district) is very rarely run off at so low a temperature as this. Professor Lunge, in his work on "Coal Tar and Ammonia," states that the temperature of pitch in running out ought not to exceed 120° C. (248° F.). This certainly would be desirable, but it does not appear to be practicable in all cases. I have seen pitch run off at at a temperature of 290° F. produce fumes of a far more irritating and lasting character than those produced by another pitch run off at a temperature of 360° F. The former had been softened with "creosote salts," whereas in the latter case "green oil" had been used. At some works it is usual and necessary to run pitch from the cooler to the beds through a brick culvert of

District No. 7—*continued.*

considerable length; in order to get it to flow freely through the channel the pitch must be run off at a temperature 30° or 40° above what it would be necessary if the pitch beds were close at hand.

In a table is given (*see* page 29) the range of temperatures at which the pitch is run off from the coolers in this district. Many of these figures are very high, and almost all would appear to be higher than necessary. It has been repeatedly stated by the owners and managers of the works that these temperatures are the lowest at which they dare run the pitch. I am sceptical on this point and feel sure that in many cases no harm or inconvenience would accrue from running off the pitch at much lower temperatures.

Many different forms of pitch coolers are in use, but that most generally used is an iron vessel of some sort, usually a worn out steam boiler, and these answer the purpose well. The best type of coolers employed are those in use at the largest work, No. 2146. Here eight stills are mounted in a set, and the pitch from these run into two large and substantial brick chambers which act as preliminary coolers. From these two chambers the pitch is run into a long closed iron vessel, partly sunk into the ground and similar to that first adopted at the Paris Gas Works and hence known as a French cooler. From this vessel the cooled pitch flows into the open beds, but in order to do so it has to pass under a brick arch below the level of the final overflow; thus the cooler is always trapped, and the flow of pitch into the open bed takes place under a semi-solid crust of pitch. This system is only in use at this one work in this district.

Some three or four of the smaller works use no cooler properly speaking, but the pitch is retained in the stills for 24 hours or more, and is then run into a pit below the ground level covered with loose iron plates; from this it is ladled into moulds or casts. In order to do this the cover is removed and the pitch must be thoroughly fluid and consequently of rather high temperature. It need not necessarily exceed 300° F., and may be less, but in one instance I found pitch being thus ladled into wooden casks at 403° F. This was at work No. 2185, which has been previously referred to as the worse conditioned tar work in the district. Here the stills are finished by fire heat only, and the pitch, at a very high temperature, is run from the stills, after standing 12 hours, into a pit such as that just described, covered with loose iron plates. The fumes given off from the pit, and during the emptying of the same, are very dense and of a most rank and irritating character. The vapours are so bad and contain so much condensable matter that some brick buildings a few yards distant have in course of time become coated with a crust of fibrous tarry matter, two or three inches thick.

All coolers must necessarily be ventilated, and they should be connected with the appliances used for dealing with the still gases. Failing this, they should at least be connected with a chimney; only at one or two works is this precaution taken. Although something has been done in nearly all the works in the district to minimise the nuisance which formerly existed, a great deal in the same direction is still required.

Continuous Distillation of Tar.

It is now necessary to mention an entirely new departure in tar distillation. Many attempts have been made for years past to distil tar continuously, but the great difficulties met with have not hitherto been successfully overcome. Now, however, Mr. F. Lennard, of the firm of Forbes, Abbott, and Lennard, has produced an apparatus which is absolutely constant in action, and which successfully and economically accomplishes the separation of the desired products. The still in question is capable of treating from 15,000 to 20,000 gallons of tar per 24 hours, and has been at work for the past 12 months during which time about 4,000,000 gallons of tar have been passed through it.

District No. 7—*continued.*

The firm with which Mr. Lennard is connected is now erecting a second continuous still to treat 35,000 gallons per 24 hours. When completed the whole of the tar obtainable by this firm in London will be distilled in these two apparatus.

The principle of the still depends on subjecting the tar to a minimum of heat, which is best effected by exposing a small quantity of tar to the largest area of heating surface at a minimum temperature consistent with obtaining all the products sought for in the process of distillation.

The object to be thus attained is effected by passing the tar through a series of coils heated by means of a large area of hot brickwork. To economise the heat, the furnace gases, after rendering the brickwork incandescent, are diverted back again over the protected coil, and finally, when the heat of the gases is well spent, are allowed to play over the naked coil, where they meet the incoming tar, which robs them of the last traces of useful heat. The tar is in this way heated up to the requisite temperature to permit of the anthracene and lower fractions being distilled, and it is then delivered into a specially designed scrubber, in descending which it meets with a current of dry (not superheated) steam. The tar here being spread over a very large surface in a thin film and in contact with steam, is entirely and rapidly denuded of its desired volatile compounds. It may be here remarked that, owing to the tar being so finely divided, it yields to separation at a much lower temperature than is the case with the ordinary system of distillation, where considerable depths of tar are operated upon.

The tar, after being denuded of its volatile constituents, resolves itself into hard pitch which collects in a chamber at the bottom of the scrubber, where, to render it merchantable, it is mixed automatically with suitable oils to bring it back to the requisite softening point, after which it flows off at a low temperature into the pitch bed.

Following now the path of the gaseous compounds, these are passed through a series of condensers, each of which brings down during the passage of the gases the various fractions required. The condensation in these is effected by the crude tar flowing around the coils of the condenser, by means of which the gaseous compounds are condensed and at the same time the crude tar is heated to such a temperature as to permit of the light oils and ammoniacal compounds being given off, to separate which the tar is passed through a simple scrubber, meeting a current of steam in its descent. It is this dehydrated tar which has been previously referred to as passing through the heating coils of the still on its way to the first scrubber.

It will be plainly seen from this description that almost the whole of the heat expended in heating the tar for distillation is recovered, and that the waste gases always pass off to the chimney at a very low temperature, with the result that great economy of fuel is effected.

By means of such an apparatus, which occupies but a small space, it is stated that a quantity of tar from 20,000 to 35,000 gallons can be distilled in 24 hours. The apparatus being practically automatic the labour is reduced to a minimum, and one man is capable of attending to a still of the above-mentioned capacity. Indeed there appears to be no reason why the same labour should not be able to control a still dealing with double the quantity. The wear and tear would also appear to be reduced to a minimum, as the temperature is nowhere excessive and is absolutely constant. In proof of this it may be mentioned that a portion of the heating coil, on being examined after several million gallons of tar had been passed through it, was said to be absolutely unaffected. This being the only point at which anything approaching high temperatures are used, the rest of the apparatus is also necessarily unaffected. The possibility of the coil becoming choked in dealing with a highly carbonaceous tar might appear likely to cause difficulty, but it is stated that owing to the fact that the tar is always in motion and that distillation does not take place in the coils, carbonisation is entirely prevented. In fact the heat to which the tar is subjected is never sufficient to permit of carbonisation or of destructive distillation occurring.

District No. 7—*continued.*

The advance made by this system over the older intermittent system of distillation is great both from an economic and scientific point of view, and equally so from the sanitation aspect. Here no tar is exposed from the time of its being pumped from the storage well to its ultimate recovery again in the form of distillates in the storage tanks provided for them, but all circulation takes place in an absolutely tight apparatus. There is no displacement of large volumes of foul gases from filling-up vessels, no boiling-over of stills, no running-off of large quantities of pitch at a high temperature, and absolutely none of the dirt and smell which invariably accompanies the older method of distillation. The complete dehydration of the tar before distillation, and the absence of any destructive distillation has a marked effect upon the character and volume of the permanent gases evolved. These given off from a still treating 20,000 gallons of tar per 24 hours are easily carried through a $\frac{5}{8}$ inch pipe to the furnace.

I am not in the position to criticise this system from a distiller's point of view, but as an inspector I cannot speak too highly of it. It is undoubtedly a great advance in the right direction.

F. Napier Sutton.

London, January 1894.

ALKALI, &c. WORKS IN SCOTLAND.

REPORT FOR THE YEAR 1893.

TO THE RIGHT HONOURABLE SIR G. O. TREVELYAN BART., M.P., HER MAJESTY'S SECRETARY FOR SCOTLAND.

SIR,

I HAVE the honour of presenting my Report of work done under the Alkali, &c. Works Regulation Act during the year 1893.

On April 1st the Amending Act of 1892 came into force. Its effect has been to bring an additional number of chemical manufacturing processes within the scope of the Act, and to release some small salt works from the obligation to register.

Of the latter the number is 11, and of those newly brought under the Act there are three. The total number now on the register is 127. The number of separate processes under inspection considerably exceeds that of the works, as usually there are more than one process at each registered work. The number of these is now 208, having received an increase of 30 owing to the operation of the amended Act.

The details of these, with other particulars, is given by Mr. Curphey in his report as follows:—

W. S. CURPHEY, Esq., F.C.S., F.I.C., Inspector.

The number of works in Scotland registered under the Acts during the year ending 31st December 1893 was 127, being 10 less than in the preceding year. Of these, 16 were alkali works, and 111 belonged to the various classes included in the schedules appended to the Acts. The decrease in the number of "scheduled" works is mainly due to the removal from the register of 11 small salt works, in accordance with the provisions of the amended Act passed in 1892 and now coming into operation. This new Act has not had the effect in Scotland of extending greatly the influence of inspection. Only three new works have been added to those already under supervision, viz.:—

1 Venetian red work,
1 Muriatic acid work,
1 Nitrate of iron work,

but in many cases additional manufacturing processes have been affected.

These processes, which in the preceding year numbered 178, rose during 1893 to 208, an increase of 30. They consist of the following :—

Alkali	12
Muriatic acid	4
Copper extraction	2
Sulphuric acid	27
Chemical manure	44
Nitric acid	9
Salts of ammonia	59
Chlorine	8
Venetian red	2
Nitrate of iron	5
Bisulphate of carbon	1
Tar	35
	208

The following statement shows the quantities of some of the materials used, and the products obtained by the operation of these processes :—

QUANTITIES OF MATERIALS EMPLOYED OR PRODUCED.

		1893.	1892.
Salt decomposed—	Tons.	Tons.	Tons.
Alkali works	37,182		
Copper works	4,188	41,370	44,361
Pyrites burned		87,678	85,727
Brimstone		2,669	2,567
Bones and phosphates dissolved		51,785	51,739
Bleaching powder made		10,441	10,641
Sulphate, &c. of ammonia made—			
Iron works	8,333		
Shale works	28,485		
Gas liquor works	11,692	48,510	45,503
Nitric acid made		2,956	2,914

In the course of inspection 508 visits were made, and 361 tests taken of the gases passing into the air from the various works.

The general average escape of muriatic acid from all the alkali works was 0·108 grain per cubic foot of chimney gases, equivalent to an escape of 3·32 per cent. of that produced.

The general average escape of acid gases from all the sulphuric acid works was equivalent to 1·75 grain sulphuric anhydride per cubic foot of total gases escaping.

Alkali Works.

The number of works of this class has not undergone any change since the previous year. One work, however, was idle throughout the 12 months, and one of the small works, where acid is produced in cylinders, was closed in the latter half of the year.

In four works an amount of muriatic acid in excess of the maximum permitted was observed to be passing into the air. In all the cases, however, the undue escape was of limited duration, and prompt steps were taken to restore the conditions of work to their normal and satisfactory state.

In the first instance the undue escape arose from the cracking of a pot in a decomposing furnace, and was rapidly remedied. In the second, the cause was more obscure, but was found to be due to the excess of some acid drainage to a fire flue unconnected with the decomposing plant. The high temperature in the flue led to the vapourisation of the drainage and consequently the acid contained in it passed on towards the chimney. In the third, a temporary irregularity in the water supply to the condensers resulted in insufficient condensation, and in the fourth irregularity in condensation was traced to large and varying quantities of steam passing along with the muriatic acid gas from the furnaces to the condensers.

The proportion of steam being at times very great, it was too much for the arrangements in existence for cooling the acid gas and raised the temperature of the condensers so unduly as to interfere with proper condensation. A secondary condenser or wash-tower was provided here, and latterly the condensation of the acid has been well within the necessary limits.

A serious complaint against the chemical works at Irvine was made in the early summer by some of the inhabitants of the town. A meeting of the Town Council was held at which three representatives of the United Alkali Company, Limited, were present, but the remaining alkali works were unrepresented. It appeared from the statements made at this meeting that the opinion prevalent amongst those complaining was that a temporary but acute escape of chlorine gas had occurred through some fault in the bleaching powder department of one of the works. Some weeks having elapsed between the time of the alleged escape and the receipt of the complaint, it was extremely difficult to trace the origin of the offence. This might readily have arisen, through the carelessness of workmen in any of the works, from an open lute on a box receiving chlorine from the chlorine stills. This has been the only complaint against these alkali works during the past two years, very marked improvements having been effected in those works belonging to the United Alkali Company, Limited.

The use of the plus pressure furnace is slowly extending in Scotland, but at one of the Irvine works the old form of close roaster is still adhered to.

The manufacture of bleaching powder in the new work, No. 35, according to a novel process, has not yet been fully carried out, but an additional Weldon plant has been erected at one of the Irvine works, and is in regular operation.

The deposition of tank waste in heaps continues to be carefully effected. The present condition of these heaps is fair, and there is no call for the adoption of any sulphur recovery process, so far as the mitigation of the escape of offensive gases from such sources is concerned.

AVERAGE RESULTS OF TESTS MADE IN ALKALI WORKS DURING THE YEAR ENDING 31ST DECEMBER 1893.

Register Number of Work.	Number of Furnaces usually at work.	Muriatic Acid escaping per Cubic Foot of Chimney Gases.	Acidity of Chimney Gases in Terms of SO_3 per Cubic Foot.	Acidity of Gases passing from Vitriol Plant in Terms of SO_3 per Cubic Foot.
No.	No.	Grains.	Grains.	Grains.
13	2	—	—	—
35	Idle.	—	—	—
68	1	0·10	0·84	1·26
69	1	0·04	0·79	1·62
70	4	{0·08 0·11	{0·72 0·68}	0·90
71	12	0·12	0·80	—
72	1	0·14	0·60	2·10
73	1	0·05	0·44	1·42
74	3	0·08	0·48	{0·87 0·97
75	2	0·11	0·46	{1·16 1·27
76	2	0·08	0·80	—
77	2	0·11	0·69	0·92
78	2	0·07	0·52	1·47
79	9	0·15	0·67	1·16
80	1	0·15	0·72	2·76
122	2	—	—	1·53
Average	—	0·099	0·66	1·39

SULPHURIC ACID WORKS.

The general condition of these works was satisfactory. In three works the draught upon the pyrites was below the general standard, and gave rise to some low-level escape of sulphurous gases whilst the working doors of the burners were opened in the ordinary course. Improvements have been made in each, with the view of mitigating this form of escape. Increased flue area, for drawing the exit gases from the vitriol plant to the chimney, was provided in one case; in another a new and enlarged Glover tower, of improved construction, has taken the place of an inefficient tower previously in use; in the third the flue for leading the gases from the burners to the Glover tower was remodelled, and now provides a much more direct channel for the flow of these gases. Upon one occasion, in two different works, an excessive escape of acid gases was observed. In both establishments such an escape was most unusual, the average escape in each case being well within the prescribed limits.

In one case, the occurrence was ascribed to the neglect of "potting," or supply the due proportion of nitrate of soda during the preceding night, and led to the discharge of the man responsible; the other arose from the bursting of a steam pipe, which interfered with the steam supply for some hours. In both cases the evil was remedied immediately.

Whilst the chemical operations were, in general, well conducted, the stability of the plant in more than one of the older works appeared to be uncertain. In two different works serious loss of liquid acid and plant resulted from the collapse of vitriol chambers.

In one of these the immediate cause was the violent gale of 17th November last, which caused much widespread damage over the country generally. Three chambers out of a total of six were blown down and the acid contents entirely lost. In the second, the storage of a larger quantity of acid than usual, on the floor of an old chamber resulted in the wooden supports giving way under the strain, and the consequent complete destruction of the chamber. In neither work has the rebuilding of the destroyed plant been proceeded with, and all manufacture in one work has ceased entirely.

The use of brimstone as a raw material continues to decrease. With the close of the year one more plant where this was used was laid off permanently, and now only four works in Scotland make sulphuric acid from what at one time was the main or only source of the sulphur necessary.

In three works new Glover towers were built.

In two works Glover towers were repacked.

In two works new chambers were built to replace old ones.

AVERAGE RESULTS OF TESTS MADE IN SULPHURIC ACID WORKS DURING THE YEAR ENDING 31ST DECEMBER 1893.

Register No. of Work.	Acidity of escaping Gases, reckoned as Grains SO_3 per Cubic Foot.			Source of Sulphur burned.
	Maximum.	Minimum.	Average.	
18	—	—	—	—
18	2·68	0·84	1·55	Pyrites.
26	1·40	0·96	1·20	,,
30	1·40	1·20	1·33	,,
	1·80	1·10	1·50	
	2·80	1·20	2·10	
43	1·40	0·96	1·70	,,
	1·60	0·64	1·00	
45	1·20	0·80	1·00	,,
47	0·84	0·64	0·75	,,
57	0·84	0·48	0·75	,,
59	16·0	0·80	1·70	,,
60	16·0	0·25	2·80	,,
65	1·44	1·20	1·35	,,
68	2·20	0·80	1·26	,,
69	2·20	1·00	1·62	,,
70	0·96	0·84	0·90	,,
72	3·20	1·20	2·10	,,
73	1·80	1·20	1·42	,,
74	1·20	0·48	0·87	,,
	1·40	0·64	0·97	
75	1·40	0·80	1·16	Pyrites and brimstone.
	1·60	0·96	1·27	
77	1·00	0·80	0·92	Pyrites.
78	1·84	1·20	1·47	,,
79	1·60	0·24	1·16	,,
80	3·50	1·60	2·76	Brimstone.
82	3·60	0·64	1·78	Pyrites.
88	2·6	2·6	2·60	Brimstone.
89	2·83	1·24	1·87	Pyrites.
90	1·80	0·84	1·16	,,
113	3·80	1·20	2·10	,,
	1·80	1·8	1·80	
122	1·80	0·48	1·58	,,
General average - - -		—	1·50	—

The preceding table shows the results of the various examinations made in these works of the gases passing away. The numbers in the fourth column are not the average of those in the second and third columns, but of all the observations taken during the year.

Chemical Manure Works.

The number of these works on the register was one less than in the preceding year, owing to the cessation of operations in a small place in a remote district where bones only were dissolved.

The condensation of the noxious gases given off during the action of sulphuric acid upon mineral phosphates, &c. has been properly attended to, and in several works improvements were introduced with this end in view. The use of empty spaces in which the gases may remain for a time, during which the volatile compounds of silicon and fluorine undergo decomposition by the action of steam always present, is extending. In three works flues of greater length and larger sectional area were provided with this object. The preliminary condensation thus effected lessens the tendency to choking of the wash-towers from deposition of solid matters, so rendering their efficiency greater, and the amount of the purification to be done in them less.

In the previous report, allusion was made to a work in the north of Scotland which had caused complaint during the height of the fishing season, when large quantities of fish material were dealt with. This department of the work has since been entirely enclosed, the enclosed space being ventilated by powerful fans which drive the foul air first through wash-towers, and finally into a cremator, where any foul smell remaining is thoroughly destroyed by fire.

Average Results of Tests made in Chemical Manure Works during the Year ending 31st December 1893.

Total Acidity reckoned as Grains SO_3 per Cubic Foot.

Register No.	Before entering Wash Tower.	After leaving Wash Tower.	Per-centage Absorbed.
20	0·64	0·08	87·5
26	8·80	0·84	90·5
30	5·80	0·16	97·2
37	3·20	0·16	95·0
45	1·92	0·08	95·8
57	1·52	0·16	89·5
61	1·44	0·12	91·7
54	1·80	0·16	91·2
66	2·24	0·08	96·4
85	0·64	0·08	87·5
89	—	0·48	—
111	1·60	trace	100·0
Average			

Sulphate of Ammonia Works.

The gradual but steady increase in the quantity of sulphate of ammonia made from gas liquor is beginning to be checked by two causes. The extending adoption of electric lighting has a restricting influence upon the quantity of gas manufactured, and consequently affects the bye products incidental to that industry. The recent introduction to several gas works of the use of oil for gas making has also had the tendency to

reduce the proportion of tar and liquor made. In comparison with coal, these residual products from oil may be said to be nil, so that the more oil is used for gas making, the less will be the proportionate yield of tar and ammonia liquor.

The prevention of undue escape of noxious gases from this class of works was efficiently attended to, save in one instance. Here repeated escape of sulphuretted hydrogen was observed. Proceedings for the enforcement of the provisions of the Acts were commenced, but were not proceeded with beyond initial steps. Subsequently by due attention to the means at disposal, and the use of proper material in the purifier for absorbing the foul gases, no further occasion for complaint occurred.

The prolonged coal strike in England and the succeeding but shorter one in Scotland, curtailed for a time the production of pig-iron and the subsidiary products extracted from the iron blast furnace gases. The low prices ruling for pig-iron, and the high prices commanded by coal during the disputes, rendered it much more profitable for the ironmasters to damp down their furnaces and put upon the market the coal which would otherwise have been used for iron smelting. In this way some of the ironworks were completely idle for a time, others, in order to supply contracts, were at work with a reduced number of furnaces in blast.

In the shale works the fight against low prices and foreign competition still continues. Three works of this kind have ceased operations, but a new one has been built and started work during the year, the number on the register being thus reduced by two. The quantity of sulphate of ammonia produced from shale does not, however, show a corresponding reduction, sustained effort to effect improvements continuing to increase the proportion of products from the raw material worked upon. The use of the waste steam from the ammonia departments for assisting in the decomposition of the shale in the retorts has become general, and at once effects an economy and removes any source of annoyance in the production of the sulphate.

Tar Works.

The distillation of gas tar is the process most numerously represented amongst those brought under inspection in Scotland by the Act of 1892.

There are two forms of air pollution incidental to tar distillation, viz., the escape of noxious gases, chiefly sulphuretted hydrogen, during the course of distillation and the escape of heavy vapours after the distillation is concluded and the hot contents of the still are being removed.

The formation and escape of sulphuretted hydrogen are most marked at the commencement and towards the end of the distillation in those works where pitch is obtained as one of the products, when the distillation is not proceeded with so far, the evolution of sulphuretted hydrogen appears chiefly at the commencement only.

Three modes of dealing with the noxious gases have been introduced, viz., destruction by fire, absorption in hydrated lime, and absorption in oxide of iron.

The first of these, burning of the gases, has the advantage of requiring least attention, but it does not prevent the sulphur present from reaching the air, simply converting it into the less noxious, but still deleterious, sulphurous acid. To some minds the idea of burning appears too risky, even with the adoption of proper safeguards, for use in works of this nature where accidental fires are apt to be most destructive.

The second method, absorption in slaked lime, entirely prevents the escape to the air of the sulphur compounds. It, however, requires more attention, and the lime must be renewed from time to time as it becomes foul. Risk from fire is reduced to a minimum.

The third method, absorption in oxide of iron, also affords a complete preventive against air pollution from the sulphur compounds. In this case there is, however, more danger from undue heating of the purifier through oxidation, with spontaneous firing as a result. All the works in Scotland in which this mode has been adopted are also works for the

manufacture of sulphate of ammonia, and the precaution has been taken of leading the gases from the condensers connected with the tar stills to the pipe taking away the gases from the ammonia saturators. The mixed gases thus proceed together towards the purifier. The gases from the ammonia department being much richer in carbonic acid and less liable to admixture with air, it is considered that any danger from fire is greatly reduced.

In the iron works where the furnaced gases are treated for the removal of tar and ammonia a different form of burning is in vogue. The gases from the tar still condensers are led to the flue taking the furnace gases to the coolers and scrubbers, so that any ammonia or light oil vapour which may be present may be again caught. Any sulphur or other deleterious compounds which may be present are, of course, subject to the same process, by which their escape is prevented.

One or other of these various modes of prevention of air pollution are now in use in all, save six, of the works in Scotland. Four of these are extremely small places, and in two a decision as to the particular method to be adopted has been slow in attainment pending alterations in other parts of the works, so that an extension of time seemed to be not unwarranted.

Operations are greatly restricted during the summer months in these works owing to the limited proportion of gas tar made during the long days and short nights, and the experience of part of a winter is too short to warrant a full comparison between the different means for purification, but the lime purifier so far seems to work well.

After the completion of the distillation, the stills are emptied prior to being charged with a fresh quantity of tar. In some works the distillation is not carried beyond the separation of the gas tar into a more volatile portion known as "naphtha," and a less volatile portion called "boiled tar," both products being articles of commerce. In such cases the contents of the still are run off into a suitably ventilated tank and should cause no annoyance.

When the distillation is continued as far as practicable and pitch alone remains, the emptying of the still may cause much more offence and some means becomes necessary to prevent an undue escape of the heavy, irritating vapours which come from very hot pitch. This object is attained if the pitch is sufficiently cooled before escaping into the open. In very small works, where days elapse between each distillation, the pitch may be sufficiently cooled in the still itself before being discharged. In most instances, however, this is not admissible besides increasing considerably the wear add tear on the still, so that other means are generally preferred for preventing annoyance.

The use of an intermediate closed vessel between the pitch stills and the pitch beds is very general. In this vessel the hot pitch remains until it is cooled considerably but still remains fluid enough to flow into the pitch bed, where it remains until quite cold and solid.

In six works in Scotland naphtha and boiled tar alone are prepared from the gas tar. In four works the operations are of a most limited nature. In all the remaining works intermediate receivers for the hot pitch are in use, and in three cases the pitch beds are covered in as an additional preventive.

Venetian Red Works.

Two works carry on the preparation of ferric oxide, but by different methods.

In the one, the red oxide is obtained by heating the materials in a close roaster furnace such as is used in the preparation of salt cake and muriatic acid in Alkali Works. The acid gases driven off are conducted to sulphuric acid chambers and there condensed in the ordinary course of vitriol making. In the other the manufacture has not long been in operation and can scarcely be said to be yet in a normal condition. Here the materials are brought into direct contact with the fire gases. These, carrying with them all acid gases driven off by heat, pass through a

condenser filled with scrap iron, down which a stream of liquor flows. In this manner the acid present forms with the scrap iron as ferrous salt, which is dissolved in the liquor, and is so prevented from escaping to the air. The operations have hitherto been somewhat irregular, the furnace being often not at work, so that observations of the degree of acidity of the escaping smoke have not been readily obtainable. Judging, however, from the quantity of scrap iron dissolved the condensation of acid gases has been very considerable.

W. S. Curphey.

January, 1894.

It will be seen from the foregoing that some increase has been caused in the work of inspection by the addition of 35 tar works to the list of registered works. The unpleasant odours which arise from this class of work are mainly caused by the uncondensed gases which accompany the distillates from the tar, and escape from the end of the condenser worm, and also the reek which arises from the hot pitch when it is allowed to flow from the still to the pitch bay. Attention has therefore been primarily given to these two portions of the work, and not without success. Although this class of works have not been under inspection for more than nine months, a marked improvement has already taken place. Warm thanks have in many places been given by the men employed in the works, for they are primarily benefited; they tell us that the air of the place is now quite different from what it had been. There was, indeed, in many cases ample room for improvement, for the eminently noxious gas, sulphuretted hydrogen, was freely given off, especially at the commencement and towards the end of the distilling operations. Now this and the other uncondensed gases are led away, and are either absorbed in lime or in oxide of iron, or burnt in the furnace, due precautions being taken to prevent the transmission of flame.

In the neighbourhood of London a continuous tar still has recently been set to work, with such success that it is probable that the system will be adopted elsewhere. Time will show whether the promise of economy is fulfilled, but, from an inspector's point of view, the arrangement is much to be recommended. The working being continuous the temperatures are constant; there is no sudden discharge of gas nor outrush of heated liquids, and the whole is so much under control that the chief sources of nuisance appear to be removed. It is to be hoped that the larger tar distillers will see it to be their interest to follow the example now set them in this matter.

A similar change may be also anticipated in the distillation of nitric acid. The importance of this manufacture is greatly on the increase, owing to the recent substitution of gun-cotton, nitroglycerine, and other nitro compounds for gunpowder. In the production of these, large quantities of the strongest nitric acid is used, so that this acid is now greatly in demand, and it is produced on a scale hitherto unknown. If the continuous system of distilling can be profitably carried out there will doubtless be a greater immunity from escape of acid gases than under the intermittent system.

It is satisfactory to be able to add that, with one unimportant exception, the infractions of the Act reported during the year were such as arose from temporary unavoidable causes, and of so slight a nature as not to call for serious notice.

I have the honour to be,
Sir,
Your most obedient Servant,
ALFRED E. FLETCHER.

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